DOCUMENT RESUME

ED 258 918 SO 016 682

AUTHOR Koroscik, Judith S., Ed.
TITLE Arts and Learning SIG Proceedings: American Educational Research Association Annual Meeting (Montreal, Canada, April 11-15, 1983). Volume 1.
INSTITUTION American Educational Research Association, Washington, D.C.
PUB DATE 83
NOTE 156p.; For Volume 2, see SO 016 683. Document contains small print throughout.
PUB TYPE Collected Works - Conference Proceedings (021)

EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS Aesthetic Education; *Art Education; *Childrens Art; Drama; *Educational Research; Elementary Education; Freehand Drawing; Integrated Curriculum; Music; Painting (Visual Arts); Picture Books; Primary Education; Skills; Visual Arts; Young Children
IDENTIFIERS Metaphorical Thought

ABSTRACT

Seventeen research papers and discussions representing diverse topics concerning research in the arts and presented as part of the 1983 Arts and Learning Special Interest Group (SIG) program of the American Educational Research Association are presented in the first of two volumes. Papers presented are: "Ways to Talk and What to Say: A Study of Art Conversations among Young Children and Adults in Pre-school Settings" (Martha Taunton); "A Response to Taunton's Paper" (Hilda P. Lewis); "The Response of Primary Children to Picture Books" (Barbara Z. Kiefer); "A Response to Kiefer's Paper" (Hilda P. Lewis); "A Response to Research Papers by Kiefer and Taunton" (Kenneth M. Lansing); "The Development of Perspective Drawing Skill" (J. Anne Murphy and Robert J. Bracewell); "A Response to Murphy and Bracewell's Paper" (Brent Wilson); "The Metaphoric Interpretation of Paintings: Effects of the Clustering Strategy and Relaxed Attention Exercises" (Hermine Feinstein); "A Response to Feinstein's Paper" (Brent Wilson); "Changing the Quality of Schooling through Aesthetic Education" (Nanthalia Washington); "Music and Reading/Language Arts: An Exploration of Relationships" (Linda L. Kelley); "A Response to Kelley's Paper" (Majorie Wilson); "Structural Information Retention in Visual Arts Processing" (Judith Smith Koroscik); "A Response to Koroscik's Paper" (Majorie Wilson); "An Analysis of Experimental Measures of Learning in Studies of Visual Arts Viewing Processes" (Barbara Boyer and Judith Koroscik); "Arts Integrated Curriculum for Grades K-6: The Determination of Program Impact" (Jon C. Marshall and Suellyn Garner); and "The Relative Effect of Three Creative Drama Approaches on the Dramatic Behavior and Mental Imagery Ability of Elementary School Children" (Helane S. Rosenberg and Patricia Pinciotti). (LH)

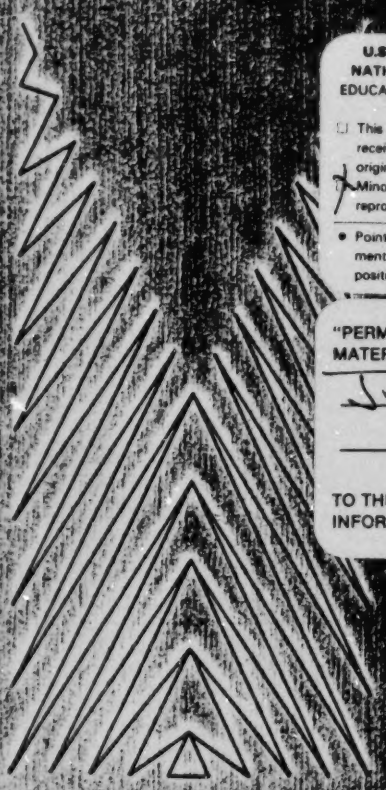
****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED258918

American Educational Research Association

Arts and Learning SIG

PROCEEDINGS



1983 Annual Meeting —— Montreal

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Judith Karoscik

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

SO016682

Preface

The research papers and discussions in this volume were presented as part of the Arts and Learning Special Interest Group program at the 1983 annual meeting of the American Educational Research Association in Montreal, Canada. The papers were selected for conference presentation by the 1983 Program Chair and Program Committee in a blind review process. Diverse research interests and methodologies characterize the proceedings which are the first to be published in response to an Arts and Learning SIG initiative to further the exchange of ideas among educational researchers in the arts.

Several persons are responsible for making this publication possible. Generous financial support was granted by the College of the Arts of the Ohio State University under the leadership of Dean Andrew Broekema and Robert Hare, Chairman of the Research and Faculty Development Committee, who made funds available for the preparation of the camera-ready manuscript. Their support in promoting the dissemination of arts education research is applauded. Dean Charles Case of the College of Education at the University of Iowa is also acknowledged for providing a loan to cover initial printing expenses. Gratitude is extended to Pamela Sharp, Stanford University, for her support as Arts and Learning SIG President; to Nancy Johnson, Marshall University, for her time and considerable efforts as Program Chair; and to the Program Committee for their conscientious input in the review process. Appreciation is additionally extended to conference participants for their excellent contributions to the 1983 program; and to Martha Taunton, University of Iowa, who provided invaluable assistance as the co-editor of this publication.

Judith S. Koroscik, Ohio State University
Publications Editor

Background

The Arts and Learning SIG was founded in 1978 by Elizabeth Clarke, Martin Engel, William Ives, and David Pariser. The purpose of the SIG is: To facilitate the exchange of ideas among educational researchers in the arts, aesthetics, and curriculum and instruction in educational contexts, and areas such as socio- and psycholinguistics, developmental and cognitive psychology, semiotics, methodology, and evaluation as they relate to the arts in education.

The first SIG program at AERA was in 1979 and consisted of an invited symposium entitled, "The State of the Arts and Learning: A review of Recent Research." At the SIG business meeting it was decided that papers would be solicited and submitted to a blind review. Officers and a program committee to review the papers were appointed for the 1980 AERA Meeting.

With the 1983 program, the SIG is initiating publication of the papers selected for presentation at AERA. Many persons have participated in the formulation of the various annual programs of the SIG. So that these persons are not lost in history, it is appropriate in this formal publication to record their names and publicly thank them for their endeavors in the formation and growth of the SIG.

1980
Chair, David Pariser
Program Chair, Lois Bellin
Secretary (also Newsletter Editor), Pat Thuernau
Treasurer, Elizabeth Clarke
Program Committee:

Robin Alexander	Charles Hoffer
Don Brigham	William Ives
Elizabeth Clarke	Don Miller
Merle Flannery	Susan Nelson

1981
Chair, William Ives
Program Chair, Robin Alexander
Secretary (also Newsletter Editor), Pat Thuernau
Treasurer, Betty Hall
Program Committee:

Hal Abeles	Don Miller
Lois Bellin	David Pariser
Betty Hall	Pamela Sharp
Nancy Johnson	Nancy Smith
Diana Korzenik	

1982
Chair, Robin Alexander
Program Chair, Pamela Sharp
Secretary-Treasurer, Cynthia Colbert

Newsletter Editor, Robin Alexander

Program Committee:

Robin Alexander	Don Miller
Donna Davis	Pamela Sharp
Nancy Ellis	Martha Taunton
Betty Hall	Nanthalia Washington
William Ives	

1983

Chair, Pamela Sharp
Program Chair, Nancy Johnson
Secretary-Treasurer, Martha Taunton
Newsletter Editor, Robin Alexander

Program Committee:

Beck Abraham	Jessie Lovano-Kerr
Robin Alexander	Sara Lundsteen
Valeria Brunk	Calvin Nodine
Cynthia Colbert	Pamela Sharp
Rita Esposito	Martha Taunton
William Ives	Lyn Zalusky
Marilyn Jonhston	
Barbara Kiefer	

Twenty-four papers were submitted for review for the 1983 program. The papers published here received the highest ratings by the program committee. Each paper was reviewed by three persons and then ranked by the Program Chair. The papers represent somewhat diverse topics which is not unusual in research in the arts. To achieve both quality and continuity in each session was indeed a challenge!

Nancy R. Johnson, Marshall University
Program Chair, 1983

Arts and Learning SIG American Educational Research Association

Proceedings Journal Volume 1, 1983

Contents

1 Preface

11 Background

1 Ways to Talk and What to Say: A Study of Art Conversations Among Young Children and Adults in Pre-school Settings - Martha Taunton

15 A Response to Taunton's Paper - Hilda P. Lewis

18 The Response of Primary Children to Picture Books - Barbara Z. Kiefer

37 A Response to Kiefer's Paper - Hilda P. Lewis

39 A Response to Research Papers by Kiefer and Taunton - Kenneth M. Lansing

43 The Development of Perspective Drawing Skill - J. Anne Murphy and Robert J. Bracewell

55 A Response to Murphy and Bracewell's Paper - Brent Wilson

58 The Metaphoric Interpretation of Paintings: Effects of the Clustering Strategy and Relaxed Attention Exercises - Hermine Feinstein

73 A Response to Feinstein's Paper - Brent Wilson

75 Changing the Quality of Schooling through Aesthetic Education - Nanthalia Washington

84 Music and Reading/Language Arts: An Exploration of Relationships - Linda L. Kelley

96 A Response to Kelley's Paper - Marjorie Wilson

98 Structural Information Retention in Visual Art Processing - Judith Smith Koroscik

106 A Response to Koroscik's Paper - Marjorie Wilson

108 An Analysis of Experimental Measures of Learning in Studies of Visual Art Viewing Processes - Barbara Boyer and Judith Koroscik

Contents (continued)

118 Arts Integrated Curriculum for Grades K-6: The Determination of Program Impact - Jon C. Marshall and Suellyn Garner

133 The Relative Effect of Three Creative Drama Approaches on the Dramatic Behavior and Mental Imagery Ability of Elementary School Children - Helane S. Rosenberg and Patricia Pinciotti

148 1983 Conference Program

Ways to Talk and What to Say: A Study of Art Conversations Among Young Children and Adults in Preschool Settings

Martha Taunton
University of Iowa

There exists a pervasive interest in the dialogue of young children as they make art. Such an interest is, perhaps, due to the use of this dialogue as a fruitful source of information for adults about the drawings, paintings, and other productions of children (Lowenfeld & Brittain, 1970). Moreover, children's comments about their art and their talk during the art process has been thought to be information about their developmental progress. Golomb (1976) indicated that children's talking can function as part of the process of representation, in that it may serve a compensatory purpose to a product though imperfect. As children become more proficient with representation, talking to supplement their art work declines. Children's verbal lack of acceptance of responsibility for the incomprehensibility of their drawings to others also has been interpreted as evidence of their egocentricity (Korzenik, 1974). Art talk, thus is seen as a clue to a child's development, as well as to a child's ideas.

In addition to young children's talk about their art products, attention has also been given by educators to the verbal interaction between children and adults during the art process. The legitimacy, the purpose, the effects, and the nature of dialogues between young children and adults when children make art have received a great share of this consideration. There has been opposition to interaction between child and adult (Kellogg, 1970). Others have found this opposition restrictive and recommended conversations purposely developed to motivate or to extend children's insights as they make art (Brittain, 1979; Herberholz, 1974; Sharp, 1976).

The effect of purposeful teacher-child interaction during the art process has been studied in the early research of Dubin (1946) and the work of Douglas and Schwartz (1975) and Sharp (1981). The adults in the Dubin study discussed a child's easel paintings with the child when the work was finished in an attempt to lead the child to advanced levels of conceptual maturity. The children in the Dubin study were reported to move through developmental stages in painting more quickly than normal. The adults in the Douglas and Schwartz study were control group teachers and teachers trained to focus on art concepts in discussions with preschoolers. When compared with the untrained teachers' classrooms, the adults and the children in the trained teachers' classrooms used more art vocabulary and more art process and action related words.

Sharp (1981) studied the increase in kindergarten children and three teachers' talk about aesthetic qualities seen in students'

art work, following the teachers' participation in a training program. The training program was designed to help the teachers learn to use aesthetic extensions. The concept of aesthetic extension was defined by Sharp as,

> a statement made by an adult to a child, which is contingent upon a child's previous utterance or artistic production. It builds along aesthetic dimensions and closes with attention on the original utterance or artistic production. It is paired with sensory data available to the child, appropriate to his level of understanding, slightly novel, and delivered at a moment when the child seems open for such a response. (pp. 122-123)

Sharp indicated that "in general, as the teachers increased the quantity and quality of their talk about aesthetic qualities, concomitant increases in students' talk were observed" (p. 126). However, there were differences in patterns of usage of different categories of aesthetic qualities by teachers and children.

While Dubin, Douglas and Schwartz, and Sharp examined the effects of teacher-child verbal interactions, a more direct look at social influences on art learnings was entertained in studies by Rosario and Collazo (1981) and Cocking and Copple (1979). Rosario and Collazo found that, in various ways, including dialogue, expectations for naturalistic art products were transmitted in the classroom. Cocking and Copple looked at children in interaction during art activities and indicated peer verbalizations were influential on the reflective and evaluative processes of young children.

Educational research has increased in its focus on classroom teaching and learning as linguistic acts (Green, 1982; Wilkinson, 1982). At the foundation of such research is the acknowledgement that children learn through communicative acts in the classroom context. Also acknowledged is the controlling role of the teacher in facilitating those interactions which enable learning to occur. The acceptance of art teaching with young children as a communicative process necessitates an understanding that interactions in the classroom teach, even if designed to avoid teaching through a noncommittal character. Such acceptance also necessitates further study of the ways children and teachers interact when making art.

The long standing debate about adult intervention in the art making of young children can be characterized as a development issue, but developmental considerations must include acknowledgement and understanding of social and cultural influences. By focusing on whether young children's development in art should be free or not free from outside influences, the influences themselves have not received adequate study. The purpose of this present study was to describe the verbal interaction occurring in preschool art activities in three classrooms. An attempt was made to discern more general patterns of verbal interactions that occur, the manner

that reflection about art is legitimatized through those interactions, and the art knowledge and art values being conveyed during those interactions.

Method

Sample

Art activities in three preschool classrooms were observed and audio taped by the researcher and a graduate research assistant. Each classroom was observed by only one person. Classroom 1 met two half-days weekly as part of a Head Start program. Classroom 2 met five full days weekly, also as part of a Head Start program. Classroom 3 was a university cooperative day care center and children had flexible schedules.

At least 14 hours were spent by the observer in each classroom setting, and 8 hours of art activities were observed and recorded in each classroom. The sample consisted of transcripts from audiotapes of those classroom activities, scheduled by the classroom teacher as art, and during which an adult initiated an activity and remained with children as they worked. The transcriptions of each observation session varied in length, as an attempt was made to record each art activity session from beginning to end. Transcripts were from five different sessions for Classroom 1, from four sessions for Classroom 2, and from five sessions for Classroom 3.

Procedure

The observer audio taped the conversations of children and adults during art activities using a 4.5" x 6.5" tape recorder with a built in microphone. The observer also made written notes describing the classroom materials available, the nature of the art activity, the procedures and sequence of activities, how children entered and exited the activity, the number of adults and children present, and other information useful in clarifying the ongoing conversations, and in describing relevant contextual information not available on the tapes. The tapes were later transcribed into typewritten dialogues for analysis.

The observer did not initiate or extend conversations or activities with children or adults, but did answer direct questions. The tape recorder was noticed by some children during the first observation sessions. When asked about the recorder, the observer indicated that she was interested in classroom conversations about art and the tape recorder aided in keeping a record of what was said during art activities.

Analysis and Results

The transcripts for each classroom were analyzed separately by the researcher. The transcripts were read and sorted into thematic

conversational units (Krippendorff, 1980). Based on the sorting of these units, the objectives of the study, and classroom observations and notes, a structure was devised by the researcher to describe each of the three interaction patterns of the observed classrooms.

Classroom 1

Classroom 1 was a four-year-old classroom in a Head Start program. The children attended the program for four hours, two half-days a week, eating lunch at the day care center on those days. This schedule was used because there was a parent home during the day.

The four-hour day included an hour during which the classroom was divided into small groups for three activities -- gym, art, and a changing or free choice activity, such as blocks, puzzles, or dramatic play. The changing activity was dependent on which materials were set out.

Entry and exit to the art area was adult directed. Each child was asked whether he or she wished to go to art, gym, or the third activity. These initial choices were accommodated, but eventually each child was sent to the art area by an adult.

The art activities were planned in advance and materials were prepared and laid out for the children. During our observations, activities such as the following occurred:
1. Children were to cut out construction paper hearts, tear and crumple tissue paper into balls and glue these down to decorate the surface of the heart.
2. Children, if possible, were to punch holes around the edge of a precut heart of thin poster board and to "sew" or "lace" pink yarn around the edge as a border.
3. Children were to trace around varying sizes of heavy cardboard heart shapes and heart negatives. Paper, pencils, scissors, and crayons were provided and children were encouraged to trace or draw many hearts and to color them.
4. Children used markers and decorated both sides of a small brown sack to be used for their Valentines. They also decorated folded card-shaped papers and placed these in envelopes. The teacher addressed these to parents and the cards were mailed on a visit to the post office.

An easel was in the art area and usually set-up for painting. Children occasionally asked to paint at the easel.

The classroom had one teacher, one full-time aide, and, on most occasions, two other adults present. The other adults included parent volunteers, high school students, and practicum students from a university. The art activities were planned by the

teacher and the aide. There was always an adult in the art area, though not necessarily the teacher or the full-time aide.

Conversations between children and adults in this classroom centered on three areas: completion of the task, basic elemental art learning, and praise or evaluation designed to motivate children. Examples to illustrate these emphases follow:

1. Completion of task, usually dealing with materials (A=adult; C=child)

(A): Aren't you done with that yet?
(C): No. I've got a lot of holes.
(A): Here's the string. Let me tape that. You know what to do: You take this and you weave it, in and out. Do you need some help?
(C): No, I can do it. How do you do it: I'm learning.
(A): It's hard. I'll do it. Do you want to go all the way around?
(C): A lot of string. A lot of holes.

2. Lesson related--basic elemental art learning

(A): What color is that, Ben?
(C): Red!
(A): Good! It's a Valentine, Can you say Valentine? I know you can say it. Do you want to paste like the others?
(C): Teacher (shows heart to adult).
(A): Did you cut this out? Good. What color is that?
(C): Blue.
(A): Blue is right.
(A): Do you know what color you have?
(C): Green.
(A): Good.
(C): I know what this is -- pink.
(A): What shape is this (holds up heart)?
(C): Valentine.
(A): Now, look. If you put it on paper, what shape is this?
(C): Heart.
(A): Right. Another heart and you can draw around them and make all sizes, and color it.

3. Exchanges about children's accomplishments were either praise and evaluation of work completed or encouraging words to motivate children

(C): Look what I did teacher.
(A): What did you make?
(C): A heart.
(A): A very good heart. You can cut that and you could give it to someone for Valentine's Day.
(A): You're doing a good job, Tommy.
(C): Now, can I go?
(A): Would you write your name on it?

(C): Will you help me?
(A): Well, you start until I get back.
(C): Do like I do. Do like I do. I practice. I practice.
(A): Right. That's what you need to do is practice.
(C): Now do like this. Tommy, do like this.

Talk in Classroom 1 was continuous, simple, and direct. The adult initiated most exchanges. If the task was physically complex or difficult, there was much discussion of materials, how to use them, and getting or giving help. Children often were able to see a teacher's example or another child's work, and frequently deduced from this what they were to do. In the classtimes observed, there was an emphasis on teaching children basic perceptual discrimination, such as color or shape names. There was also an emphasis on following instructions and finishing a task on one's own.

Comments about aesthetic qualities of works were primarily attention called to a work being completed, pretty, and having many colors or different shapes. To encourage children to add to their work, the adults often asked if more color or shapes could be used.

There was an emphasis on preparing children for kindergarten and first grade. Socialization skills, self-confidence, ability to follow directions, and language use were stressed in the 8 hours the children were at the center each week, and this focus was pervasive during the art activities.

Classroom 2

Classroom 2 was also a four-year-old classroom in a Head Start program. The children could attend the program from 7:30-5:30 five days a week, though arrival and departure times varied. The children could eat both breakfast and lunch at the center.

The daily schedule included two time periods when a relatively formal art activity was planned -- in the early morning as children arrived and finished breakfast, and in the afternoon as children finished snack. Children were allowed to go to other activities during this time so the choice to participate usually was the child's. Additionally, there were crayons, paper, markers, scissors, and paste in the group-block area and the puzzle area. Children frequently would use these rather than come to the art area.

The classroom had one teacher and two part-time aides. Other adults, such as practicum students, student teachers, or volunteers were also in and out during the day. During the two planned art activities, there was an adult in the art area.

Art activities that were observed included:
1. Children were to watercolor paint on manilla paper. The

option of crushing the paper and flattening it out so that the paint took on a batik effect was presented.
2. Children were to mix colors by adding food color to clear jars of water.
3. Children were to use water colors and crayons to make resists.
4. Children were to paint at the easel with tempera.

Conversations between children and adults centered on the following three areas: management of materials, talk about intentions and actions while working, and talk about materials while working.

1. Management of materials
(C): I want white.
(C): Can't have two.
(C): After I get done.
(A): Remember you need to leave some water in your brush.
(C): Okay.
(C): I did.
(C): I'm starting with blue.
(C): I'm starting with red.
(C): What is this white?
(C): We got in trouble for doing it one time. From Mary. Right Mary?
(A): Doing what?
(C): From doing this
(C): Not cleaning our brushes.
(A): Yes. And when Tom painted on himself.
(C): You weren't here when Jerry put paint on his arms. You wasn't here.

2. Talk about intentions and actions while working
(C): Now I got orange and that color and that color and I got this color in here.
(C): Don't put it on me.
(C): Does that change it. You got water on your finger.
(C): This color, this color, this color.
(C): Orange.
(C): I'm making the sky, and orange sky.
(A): That's a pretty sky.
(C): Blueberry water.
(C): I'm making water.
(A): Oh it's water instead of a sky? Okay.
(C): That's pretty. It's water, always water.
(A): I've never seen orange water before.
(C): You didn't?
(A): No. Where do you see orange water at?
(C): I don't know.
(A): Oh in Nigeria the water is orange?
(C): Yes.
(A): Hey, sounds interesting.

3. Talk about materials while working

(C): I making a tree with all these, with colors (dab, dab, dab...) (Said to no one). Oh yuk. I forget to steer it. Look what it's turned into. I turned to orange on the brush. It turned into that again I making a storm, a tornado. Look at this brush. That's all right if it turned into that color, cause it's like this. Oh, yuk, orange. There. Sloppy. There's a letter "S", and a number. The letters that go to my name are dripping. The paint won't come off your hand.

(A): It won't.

(C): I was lying. The moon's dripping.

(C): Look at Jeffry's.

(C): Yuk, orange, sloppy, sloppy, orange, orange, sloppy, orange. You don't have to write my name, cause I already wrote it.

(A): Okay.

(C): I'm not done.

(A): You want another piece?

(C): Yes, look.

(A): It came right through, didn't it? How come it did that?

(C): Because I've been mixing it too hard.

(A): Too much paint in one spot.

(C): Yes, let Annie see.

(C): I already saw.

(C): On the bottom.

Art activities in this classroom were, at most, loosely structured. The planned activities that were observed were experimental in nature (resists, mixing colors). Discussion focused on what was happening with materials as children worked or what would happen with materials if children tried a certain technique. Occasionally, more specific tasks were given to children. This was evident in the circus paintings posted in the classroom that had been done in conjunction with the class plans to have a circus in the room for other classes in the center. Additionally, materials sometimes were simply put out for children to use, though an adult stayed in the art area as children worked.

The children talked much more than the adults in this classroom. They made announcements about what was to be or had been painted or drawn. Children frequently sang or made noises in conjunction with their actions. As their fascination with media took over, children made comments as if a material had a will of its own (i.e., "It dripped into the white and ran all over"). Adults would often ask why something was happening to encourage children to develop an awareness of their own actions and to be reflective about the use of materials.

Classroom 3

Classroom 3 was a cooperative university day care center. The children's ages varied from three to five years. The schedule for children varied also, depending on parents' schedules.

The day long program included two periods, at 8:00 and 2:00, when an art activity was begun by an adult.

Children were able to choose whether or not to come to the art area and there were usually three to five children with one adult.

The art activities that were observed included:
1. Children were given pencils, crayons, paper, tape, doilies, stencils, and protractors. They were shown how to trace the stencils but no product was specified.
2. Yarns, crayons, markers, and red construction paper were provided. Children were asked to make hearts to hang or tape on a large, bare tree branch for Valentine's Day.
3. Crayons, paper, paper plates, gummed stickers, and scissors were provided. The children were asked to make "Spring Time" pictures using stickers and drawing materials.
4. Cotton balls, cotton fill, wall paper scraps, wrapping paper, plain paper, glue and scissors were provided. Children were asked to make Summer and Winter collages.
5. A variety of collage materials were put out with no specific instructions to children, though an adult was present.

Conversations in this room had several emphases: management of materials, praise and evaluation of work or encouraging comments to motivate children, adult giving extended descriptions, adult questing to extend ideas, and qualities of materials.

1. Management of materials

(A): I will cut something for you if you need me to. This I think you can cut yourself.
(C): I found this one.
(C): Oh yucky. I can't seem to make my heart. I need a new pair of scissors. Where is the scissors at.
(A): They are over there by Dianna.
(C): Dianna, could you hand me the scissors. Dianna, Dianna, Dianna.
(C): I'll tell you what clothing I'm gonna put it on. Where did my heart go?
(C): I'm gonna cut a heart and a square out of here.
(A): That makes me think of summertime. Ok, I'm getting tired of cutting materials. It's hard to cut.

2. Praise, evaluation, or encouragement

(C): See, here's a heart shape. See what I cut out.
(A): You know what I think would be really neat Doug. If you found something like um...

(C): Silver.
(A): Something like a real light color to put this on. Where is it? Don't you think that would look neat?
(C): Yeah.
(A): I think it looks beautiful. Then you could take it home and put it on your wall. Or look at this. Nice blue. See how it stands out. Among the flowers.

3. Adult giving extended descriptions
(A): See these things. These are wallpaper. You pick out one you like best of all. There are all sorts of different ones. There's flowers, and there's plain ones and there's ones with people on it.
(C): I like this one.
(C): I like that one.
(A): Anything you could put on a wall. Anyway, you pick out one that you like, and we will cut it out, and then you can glue stuff on top of it.
(A): Huh! Look at that. What do you think happened.
(C): What?
(A): Look at it. What do you think that stuff is?
(C): Paint.
(A): Yeah, it looks like they just globbed it on. Oh, look at this. It's like they painted on it. These are really neat. They all look different.
(C): Wow, I want to cut out one of these out when I'm done with this.
(A): See now, aren't you glad you came over to see what we were doing?
(C): Yes.

4. Adult questioning to extend ideas
(A): Isn't this a pretty color, Roger?
(C): No. This is the same color. One is sparkly and one is not.
(A): Which one is sparkly?
(C): The dark one.
(A): Which one is darker?
(C): That one is the lightest.
(A): See the neat picture Roger is making.

5. Qualities of materials
(Roger looks through the bucket of materials for more things to put on.
(C): Oh neat! I like this. I have a shirt all red, but it's not that bright.
(A): You do.
(Roger has problems cutting the material.)
(A): That brightens up your picture Roger. Let me look in here and see if we have anything else that's neat.

(Roger and Judy look through the book again.)
(C): Ooo, I like that.
(A): That one is sort of nice.
(C): Ooo, look at that.
(C): They are almost the same, just different colors.
(A): Oh, here's a happy one.
(C): Oh, I like that.
(A): See.
(A): Oh, feel this Roger.
(C): Oh, I like that.
(A): Let's cut out two of these. I like to feel them.
(C): Ooo, I like this one too.
(A): Cut that one off then. I sort of like the blue one.
(C): Oh, I like that. Oh, I like that.
(A): That's the same as the other.
(C): Just a different color. How come these are the same. Ooo, I like this. Judy, this.
(A): Cut out some of these.

Adult and child both initiated conversation in Classroom 3. The adult encouraged reflectivity by elaborately describing, by showing enthusiasm over physical qualities of materials, by indicating choices available to children, and by questioning and probing children's comments. Rather than an emphasis on finishing a task, there was an emphasis on encouraging the child to extend more effort on what he or she had done. The adult seemed to encourage the child to consider and to imagine what else could be done with materials and ideas. Teacher specified tasks often evolved into child designed tasks (i.e., paper plates designed for the Spring pictures eventually were designed and used by children as Frisbees).

Discussion

Because preschools provide early and highly influential experiences for children, it is necessary to understand the mechanisms of art education that are currently operative in these settings. This study examined conversations between young children and adults during art activities in three preschool settings in an attempt to understand how and what art ideas and behaviors are intentionally and unintentionally revealed and learned. The conversations and observations revealed that the three classrooms were drastically different because of multiple factors -- children's backgrounds, time of children in centers, background and training of adults in the centers, and goals of the centers. However, several observations about the art conversations studied in these three classrooms seem worthwile discussing in a general sense.

The prior decision by the teacher/adult about what is to be the art task for children is a nonverbal act that profoundly affects subsequent verbal interactions. If a task is given to

children that is physically demanding or complex in terms of steps, adult and child conversation may be spent on getting and giving information about the correct use of materials, about needed aid with materials and tools, or about the child's ability to do the difficult task. If a task is highly structured and a predetermined form is specified as an end product, conversation may be spent getting and giving information about procedures needed to arrive at the predetermined form and assessing whether the correct form is achieved. If a task is to experiment or learn about materials, conversation can be descriptive, and sometimes speculative, about materials with occasional references to causation or utilization by the child of the qualities and effects of media. Similarly, if a task is to work with a variety of types of materials, conversation can be descriptive, and sometimes enthusiastic, about the physical qualities of materials.

Like the structuring of the art activity, the scheduling system developed by the teacher/adult is also a nonverbal action that impacts classroom talk. If children do not truly chose whether to come to the art area, conversation frequently can assume an enticement, a confidence-building, or a motivating function. This occurs before children come to the art area and while they are there. If the time allotted for art is definitive, conversation can assume a monitoring role, in which references are made to completing work on time.

During art activities, the verbal interaction between adults and children offers opportunities to the teacher/adult to encourage reflectivity, to develop abilities to talk about art, and to extend children's conceptions about art. If an adult suggests that children extend their expressive ideas, indicates media choices and possibilities in relation to children's ideas, and probes children's comments, reflectivity can become an expected part of the art making and art looking process. If an adult uses rich and extended descriptive language about art and media and expresses honest and enthusiastic delight over art works, talking about art can be seen as a natural outcome of looking at and making art.

The task and the time for art are predetermined by the teacher/adult and establish a context which strongly influences communicative behavior by limiting discussion about art concepts and children's efforts in art. Young children may think art to be a specific place, time, or task, dependent on the availability of materials and on an adult's permission to continue. The teacher/adult can initiate verbal exchanges designed to develop conceptions about art as an intentional, expressive activity. Without this, the teacher/adult is teaching children, not children about art. While understandable, this does not seem a consciously taken position, nor a desirable or necessary compromise.

References

Brittain, W. L. Creativity, art, and the young child. New York: MacMillan 1979.

Cocking, R. R. & Copple, C. E. Change through exposure to others: A study of children's verbalizations as they draw. In M. K. Poulsen & G. I. Lubin (Eds.), Piagetian theory and its implications for the helping professions. Los Angeles: University of Southern California, 1979.

Douglas, N. & Schwartz, J. Increasing awareness of art ideas of young children through guided experiences in ceramics. Studies in Art Education, 1967, 8 (2), 2-9.

Dubin, E. R. The effect of training on the tempo of development of graphic representation in preschool children. Journal of Experimental Education, 1946, 15 (2), 166-173.

Golomb, C. The child as image-maker: The invention of representational models and the effects of the medium. Studies in Art Education, 1976, 17 (2), 19-27.

Green, J. Research on teaching as a linguistic process: A state of the art. Paper presented at the 1982 AERA Conference, New York.

Herberholz, B. J. Early childhood art. Dubuque, Iowa: Brown, 1974.

Kellog, R. Analyzing children's art. Palo Alto, Calif.: Mayfield, 1970.

Korenzik, D. Role-taking and children's drawings. Studies in Art Education, 1976, 17 (2), 29-35.

Krippendorff, K. Content analysis. New York: Sage, 1980.

Lowenfeld, R. & Brittain, W. Creative and mental growth. New York: MacMillan, 1970.

Rosario, J. & Collazo, E. Aesthetic codes in context: An exploration in two preschool classrooms. Journal of Aesthetic Education, 1981, 15, 71-82.

Sharp, P. Aesthetic response in early education. Art Education, 1976, 29 (5), 25-29.

Sharp, P. The development of aesthetic response in early education. Unpublished doctoral dissertation, Stanford University, 1981.

Wilkinson, L. C. Introduction: A sociolinguistic approach to communicating in the classroom. In L. C. Wilkinson (Ed.), Communicating in the classroom. New York: Academic, 1982.

A Response to Taunton's Paper

Hilda Present Lewis
San Francisco State University

Martha Taunton orients her study to the long standing dispute over what if anything, to say to a preschooler about his or her art. At one extreme is Kellogg, who warns adults to say nothing. She believes that artistic development in early childhood is well-programmed by nature, and verbal interference by adults is apt to throw the process off its course. Others, such as Sharp, look to language as a means of heightening children's awareness of artistic qualities. Taunton argues that teaching is a linguistic act controlled by the teacher, and that even those interactions that are intentionally non-committal affect learning. She goes on to say that this premise necessitates study of child-teacher interactions when making art.

In my view, Taunton's logic is a little shaky. She posits a causal relationship between teacher-child interactions and learning outcomes. However she undertakes a study of the cause (language) without considering the effect (learning). It is like acknowledging that what people eat affects weight gain or loss, and then recording what a group of people choose to eat every day without ever weighing them.

Taunton identifies three objectives for the study:
1. To characterize patterns of verbal interaction between adult and child,
2. To describe the ways and determine the degree to which language develops reflection about art, and
3. To ascertain concepts about art manifested in verbal interaction.

Data were obtained in three preschool classrooms, two of which were Head Start programs for four year olds, and the other a university day center for three to five year olds. Presumably they were selected on the basis of convenience with no attempt to sample randomly. Consequently the data cannot be interpreted as applicable to preschools generally.

Data consisted of transcripts of twenty-four hours of audio tapes, eight in each classroom, recorded during activities designated as art by the teacher and initiated and supervised continually by an adult. Taunton fails to tell the reader who the adults were. Clearly they were not always and possibly never the teacher. Information is not given as to how many adults were taped. One classroom had four adults on duty most of the time. The second classroom had a teacher, two part-time aides, as well as practicum students, student teachers, or volunteers, who moved in and out during the day. Taunton does not report how many adults were

typically working in the university day care center; in all probability there were several. The findings therefore are based on and apply to a group whose size, professional status, and personal characteristics are unknown.

In addition, the reader is provided with no information about the children other than their age range and the maximum number of hours of preschool available to them, which was different in each class. The reader is not informed about factors in the backgrounds of children that might affect their verbal interactions, such as socio-economic level, education of parents, languages spoken at home, general maturity, and the like. Preschoolers vary widely in their ability to use the language. Verbal interaction with privileged children are apt to differ widely from those with children from impoverished homes.

Taunton and her assistant also took notes to use in describing the context in which interactions were recorded. Only one person observed and taped in each classroom; two or more observers per classroom is preferable.

Taunton sagely observes that art is defined by time and place in these classrooms. Some of what was called art activity was really motor skill practice. For example, children cut out paper hearts, punched holes and "sewed" yarn into them, traced, and colored. Free, creative activity, such as easel painting and collage were also available. Taunton, however, does not indicate the kinds and duration of each activity in progress during each taping. Certainly, punching holes elicits different verbal interactions than doing a collage.

Additional experimental bias was introduced because participation in the art activity was mostly self-selected. Taunton does not report the number and percent of children in each class who were taped. Nor did she report avoiding taping the same children over and over again. Findings based on a small biased sample may not hold up for the group as a whole.

Transcripts were sorted by Taunton alone into thematic conversational units. There was no independent validation of her classification. The procedures that were followed in arriving at three interaction patterns per class are not described. The study cannot be replicated on the basis of information provided.

Taunton found that in one classroom, in which children were assigned the cutting out of hearts, punching holes, sewing, etc., language was adult initiated and directed towards completing the task. In the second classroom, where children engaged in water coloring, crayon resist, easel painting, and color mixing, adults focused on using materials. This classroom was freer, with much more talk initiated by children. In the third classroom, Taunton concludes that "adults encouraged reflectivity by elaborately

describing, by showing enthusiasm over physical qualities of materials, by indicating choices available to children, and by questioning and probing children's comments". If this was actually the case, exemplary teaching was carried out. A larger sample of teacher comments could lend credence to this conclusion and provide invaluable teaching models.

The basic outcome of the study is information regarding the determinants of classroom talk. Taunton points to the linkage between the nature of the task and the comments offered. For example, structured, complex or demanding tasks elicit information on using materials, procedures, assessments, and capabilities. If a task was to experiment or learn about materials, conversation described media and the potential of materials. In any event, the decision by the teacher on the activity to offer shapes the content of verbal interactions.

Taunton fulfills the first objective of her study -- to characterize patterns of verbal interactions between adult and child. The other two objectives -- to describe the ways and determine the degree to which language develops reflections about art, and to ascertain concepts about art manifested in verbal interactions, are touched upon but not realized.

Taunton's study can be interpreted to support the idea that teachers ought to provide activities that are truly artistic rather than merely technical. Activities undertaken in the name of art to develop motor skill, perception, ability to follow directions, and other abilities seen as basic to later classroom learning elicit lower level verbal interactions. Constricted art leads to constricted verbal interactions. Art activity in which children are freer and more self-directed leads to richer use of language. This unanticipated outcome is one which should be made widely known to teachers of young children.

The Response of Primary Children to Picture Books

Barbara Z. Kiefer
University of Houston

In many homes across America the bedtime story is a nightly ritual. Indeed, it may not be an exaggeration to say that, for some children, the first words spoken are not "mama" or "dada", but "read it again." The picture book is often the child's first contact with literacy, literature, and visual art, yet we know little about what links may exist between the child's often passionate attachment to picture books and later aesthetic understandings.

While the reading of picture books to young children has been identified as an important factor in both language and reading development (Cazden, 1972; Cohen, 1968), research that purports to investigate children's reactions to picture books has not deepened our understanding of how a child interacts with books on a continuing basis in the real world. Often, this research is conducted for commercial purposes "both for those who purchase and for those who prepare books for children" (Smerdon, 1976, p. 30). In order to limit variables and generalize findings, researchers have often shown children sets of pictures removed from the context of the book and asked them to choose the ones they liked. For example, Smerdon (1976) presented children ages 6-14 with pairs of black and white drawings executed in styles ranging from realistic to abstract. These were flashed on a screen in pairs for a five-second period, and children were asked to mark preferences in a response booklet. Thus, Smerdon concluded that children preferred realistic forms in illustrations. Depending on the variables isolated, other researchers using similar methods concluded that children preferred bright colors to black and white (Watson 1981) or realistic color to nonrealistic color (Stewig 1975). These approaches fail to consider insights gained from theorists in literary response (Rosenblatt 1976) who stress the importance of personal reaction to a literary work which Rosenblatt refers to as the "live circuit set up between leader and text" (p. 25) and the time necessary for that response to develop. Purvis and Beach (1972) explain:

> Response consists of cognition, perception, and some emotional or attitudinal reaction; it involves predispositions; it changes during the course of reading; it persists and is modified after the work has been read; it may result in modification of concepts, attitudes or feelings. (p. 178)

In addition, studies of pictorial preferences by researchers like Smerdon, who carefully limited variables, tested children under laboratory conditions, and generalized findings regarding norms rather than individual variation, have not considered the influence of the context in which a child reacts to a picture book.

Yet studies in the fields of psychology (Ninio & Bruner, 1978), language learning (Cazden, 1972), literary response (Hepler, 1982; Hickman, 1979) and art education (Olson, 1970; Wilson, 1966) suggest that the opportunity to interact with books and art objects through verbal and non-verbal means in the presence of parents, teachers, and peers may deepen aesthetic response and heighten critical awareness.

Finally, researchers like Smerdon who have presented children with pictures removed from the context of the book have also failed to consider the nature of the picture book as an art object. As Bader (1976) suggests:

> A picture book is text, illustrations, total design; an item of manufacture and a commercial product; a social, cultural, historical document; and, foremost, an experience for a child. As an art form it hinges on the interdependence of pictures and words, on the simultaneous display of two facing pages, and on the drama of the turning of the page. (p. 1)

Marantz (1977) argues that when picture books are separated and displayed, as in studies mentioned above, they "suffer a loss of meaning and significance" (p. 148).

In view of the above failings of empirical studies of children's preferences for picture books, and supported by findings from related fields of literary response, aesthetics, and psychology, the researcher chose to use methods of ethnographic research to describe the responses of primary children to picture books in the context of a school setting.

The purpose of the study was to examine and describe the response of first and second grade children to picture books in a natural setting in order to formulate problems, classifications and hypotheses regarding these responses.

Method

Techniques of ethnographic research have in recent years provided new insights for scholars in the fields of language and art education. Kantor, Kirby and Goetz (1981) argue that ethnographic research,

> in being flexible, discovery-oriented, and concerned with the particulars of context, the dynamics of social interactions, and the constructions of meanings, ethnography is appropriate to the study of multidimensional aspects of language instruction. (p. 305)

In relating such methods to pictorial investigations with young children, Gardner, Winner, and Kircher (1975) suggest that because

the child can determine the direction and wording of subsequent issues, and because the interviewer can construct follow-up questions which may probe beneath the surface of the child's response, a methodology which is "designed to uncover what the subject believes and how he conceives of an object even if he or she has difficulty putting it into words . . yields a greater reliability in response than closed questionnaires or directed inquiries" (p. 74). Because previous empirical research regarding children's response to picture books had not accounted for such considerations, ethnographic methods were chosen for the present study.

The researcher assumed the role of participant observer in two combination first and second grade classrooms, recording background data and events by means of descriptive notes, anecdotal records, and tape recordings during a total of 22 weeks. Toward the end of the observation period, once it was ascertained that the children were comfortable with the researcher's presence in the classroom, interviews were conducted with individuals and small groups. In one activity children were shown two recently published books and asked to show the researcher how they liked to look at a new book and to think out loud as they looked through each book. In a second activity children were read The Bremen Town Musicians by the Brothers Grimm. The children were then shown three illustrated versions -- Janina Domanska's colorful, abstract illustrations, Donna Diamond's impressionistic black and white drawings and Ilse Plume's childlike, stylized illustrations, also in color. Again the children were asked "What are you thinking as you look at these pictures?" Subsequent questions grew out of individual responses.

Since the object of the study was to provide as much descriptive data as possible regarding the range and types of responses children make to picture books, it was felt that a traditional classroom setting which allowed children little choice in picture books or little free time in which to respond to them would be less desirable than a classroom in which literature and not textbooks was the focus of the reading program. It was recognized that such a classroom might represent the ideal rather than the norm and might make generalization difficult, but it seemed necessary to identify a wide range of responses to picture books which might possibly occur in order to establish a framework for description and to identify possible research hypotheses.

The site chosen for the study was an upper middle-class suburb of Columbus, Ohio. The school system provided traditional schools and two alternative schools which parents could request for their children. The philosophy of the alternative classrooms which were chosen for the study was based on the British "informal" approach. Teachers used children's literature as the focus for classroom instruction and provided children with many opportunities to respond to books in a variety of contexts and media. Furthermore, children were generally free to follow their own leads when it came to choosing books and activities.

In the two primary classrooms chosen for the study the curriculum was organized around themes such as folk tales or time. During the days or weeks devoted to a theme, children chose language and art projects suggested by the teacher which focused on aspects of the theme. The teachers collected picture books relating to the theme which were highlighted in daily read-aloud sessions. In addition each classroom had libraries of between 300 and 500 books. Children were encouraged to read these books during daily free-reading time. Except during class discussions, children were free to move about the room and to talk with each other as they worked, were encouraged to read widely on their own or with partners and to discuss the books with each other. Paint, chalk, crayon, and other media were available to children who wished to create a product in connection with a particular book.

A total of 44 primary children, in two self-contained combination first/second grade classrooms, participated in the study (26 second graders and 18 first graders). During a preliminary study conducted in one classroom over a 10-week period, themes emerged from the initial collection of data. These themes allowed the formulation of questions to guide observations and interviews in a second combination first/second grade classroom in the same school district and initiated the collection of data over a 12-week period. As data were reviewed, the original themes were modified and eventually organized into a descriptive framework for primary children's response to picture books.

Results

Observations and interviews in the two primary classrooms over 22 weeks covered by the study, provided a wealth of data which were organized into a descriptive framework which centered on three themes or domains: variations in children's response to picture books; changes in response over time; and the context for response.

The present discussion will center on the theme which accounted for the bulk of the data--variations in children's response--and particularly on the verbalizations which seemed to reveal children intent upon the construction of meaning with regard to the illustrations and written text in their picture books. Children in both primary classrooms were encouraged to talk about books--in group discussions with the teacher or each other and with the researcher. Their verbalizations (a) included special vocabulary, (b) were purposeful, (c) revealed their individual concerns with the visual elements in their picture books, and (d) revealed their understanding of stylistic aspects of the illustrations.

Special Ways of Talking

It was found that children used a special register when they talked about picture books--a register that was at once that of the "critic" yet uniquely their own. Many of the children seemed

comfortable using vocabulary like "illustrations," "illustrated," and "primary colors" to describe the pictures. They mentioned title pages, dedication pages, endpapers, artist's "technique" or his "media," and used words pertaining to media -- like collage, watercolor and acrylics. Adam, for example, explained that he liked the way Vidal "designed" the animals in Bringing the Rain to Kapiti Plain, and Meg pointed out that Peter Spier used "India ink" in his pictures.

On other occasions, children created words or metaphors which more closely reflected their own experiences when they described books. Ricky assured the group that an artist had used "color concussion" [sic] to create one-color wood block prints. He knew this because "I looked carefully at the pictures with a magnifying glass." Children used words like "pumpy" or "mashed potatoes" to describe Tomie De Paola's distinctive clouds. Hildy described Sendak's elaborate illustrations in Outside Over There as "lushy," while Joan called them "antique." The ripples of foam on the lake in Dawn were compared to "whipped cream men put on to shave." Meg said that the paper in A Visit to William Blake's Inn looked like "coke spilled on it." (It was painted to resemble parchment.) Sean remarked that a bright waving river in Domanska's What Do You See? "looks like birthday whipped cream. You know, like those little squirts that come out."

At times, the children's understanding and use of these technical terms did not always match the adults'. First grader Anne asked, "Does illustrated mean did the pictures or did the writing?" Several children seemed confused about terms like "bright" and "dull" and described intense colors as "light colors" or "dark colors." Some children did not know what Mrs. Jay meant by the term "medium" when she asked, "What medium did the artist use?" Still other children altered technical terms slightly -- Nina, also a first grader, spoke of "all the little patternings" in Domanska's designs, and Sean (grade one) referred to the "framery" Diamond put around her pictures. Several of the children had remembered hearing their art teacher use the term "expressionism," but used the terms "in press," "impressions," and "expression" instead. Second grader Janie explained that Domanska's illustrations for the Bremen Town Musicians were "what our art teacher called expression - like you wouldn't find a red cat."

Purposes for Talking

Children used these words and phrases--their own and those supplied for them by adults--for many different purposes, and as the data were examined, categories concerning these "functions" of talk began to emerge (see Table 1). The categories were adapted from Halliday's (1975) Functions of Language using only those functions which seemed to apply directly to the response situation. These categories included: "Informative" - language meant to convey information, "Heuristic" - language used for finding things

out, "Imaginative" - language used to create a world of one's own and "Personal" - language used to express one's individuality, to give personal feelings and opinions.

Informative talk. Children used language to report information about picture books. At times, this concerned the content of the pictures. As Jimmy (grade one) looked through several versions of The Bremen Town Musicians, he pointed out the characters: "That's the donkey (pause) and this is the hound (pause) the donkey, the hound and the cat." Rose (grade one) mentioned what was included in the picture: "Here's the hen on the roof," and what wasn't: "This has no stars." Timmy (grade one) and others told a story as they looked at the pictures in What Do You See?: "The water's sorta dark, and the background is sorta dark, and they have him diving in ... and then they're on the boat." Other children pointed out stylistic elements; "This is dull," "This is bright," "There are zig zags in the umbrella," "It's kinda like smooth."

Informative language also served the function of comparing as well as pointing out. Children related information about the pictures to information in other books: Lisa (grade one) compared the house in Plume's The Bremen Town Musicians to one she had seen in Hansel and Gretel. Many children spoke about pictures in terms of their experience -- comparing Domanska's expressionistic animals, for example, to what they knew about "real" cats and donkeys. "Cats aren't usually pink and orange," stated first grader Anne. Rose agreed: "I never seen a purple donkey." Still other children used analogies to compare what they saw to what they knew. Amanda reported that the end pages in Diamond's The Bremen Town Musicians looked like cardboard. Shelly (grade one) felt that the patterned umbrella in Domanska's What Do You See? looked "like wood" while Amy reported that Domanska's turtle looked like a zebra.

Heuristic talk. The children in these rooms were active explorers of the world of picture books, constantly questioning what they saw. Some of these questions were speculative -- simply wondering about relationships in pictures or stores. Looking at a robber in Domanska's The Bremen Town Musicians Scott said, "I wonder what he's doing." Timmy asked, "What's happening - is he carrying him?" When Ida flies out her window in Sendak's Outside Over There Adam asked, "How could she fly?"

There was usually someone ready to answer these queries. Sean assured Adam that Ida could fly "because it's (the mother's cloak) a special raincoat." Such conclusions were common as children talked about books. Many such inferences were concerned with what was happening in the pictures. Ned looked at a bird in What Do You See? and stated: "Right here the bird is singing ... cause his beak is open." Several children mentioned the hazy images Diamond had placed among the trees toward the end of The Bremen Town

Table 1

Functional Categories for Children's
Verbal Responses to Picture Books

1. Informative - language meant to convey information

   1.1 Report the contents of the picture

   1.2 Compare what is in the picture to some aspect of the real world

2. Heuristic - language used for finding things out

   2.1 Wonder about events in pictures

   2.2 Infer cause of pictured events or preparation of illustrations

   2.3 Predict outcomes or events from pictures

3. Imaginative - language used to enter the world of the picture book.

   3.1 Enter the world of the book

   3.2 Create figurative language

4. Personal - language used to express one's individuality to give personal feelings and opinions

   4.1 Associate personal experience with book

   4.2 Express feelings

   4.3 Evaluate

Musicians: "They're devils cause in the one you [the interviewer] read they thought the noise they made were devils." Nina stated that they were "the faces what he said about."

Many more inferences concerned the way in which the artist executed his/her illustrations. Stella (grade one) thought she knew why Domanska had done "weird pictures" in the semi-abstract What Do You See?: "the artist drew weird because he thought it would be fun for adults and kids just to look for different things that are weird about the animals." Other children speculated about how the pictures in books had been done. Meg said of We Be Warm Till Springtime Comes: "it looks like they've been painted. You can see the brush coming down," while Elizabeth (grade one) remarked, "it looks like he used his fingers or his hands." Nina and Amanda discussed Domanska's The Bremen Town Musicians:

Amanda: I was thinking how they were made out of construction paper.

Interviewer: What makes you say that?

Amanda: I think - I think of the shapes. I think of - -

Nina: I think of paint - crayons or marker or scissors are for outlining and I don't think that. They didn't use scissors. They might of torn or something.

Interviewer: And you think they used paint?

Nina: Yeah - because it's smooth

Imaginative talk. Children also used language to enter the world of the picture book. Some children approach the imaginary world very tentatively. Sean seemed fascinated with Bloom's black and white depiction of glass jars. He looked at them for some time and then remarked, "It looks like I could touch it." Adam, who struggled throughout the period of observation with a definition of what looked real, gave in to his imagination when he heard The Bremen Town Musicians read. "When I heard the story," he reported, "I thought of something like a real story of real animals and that (pointing to Diamond's black and white illustrations) was the story, but then I asked my mind to change it into color."

Other children are quite ready to suspend belief and become one with the story. As Amanda silently looked through Domanska's The Bremen Town Musicians, she was asked what she was thinking about. "I'm thinking that I'm one of the people," she answered, "I'm thinking that I'm the donkey - no - I wanna be the dog." Later, as she and Nina looked at Diamond's version, she changed characters:

Nina: Look at the dog - it's like a different dog.

Amanda: Yeah - I think I wanna be the cat now. What you want to be?

Nina: I wanna be the dog - cause the cat's different than the cat here (in the Plume version).

Personal talk. Another category of talk about picture books concerned talk that served a personal function. Children often had personal experiences that they associated with picture books. Sometimes the illustrations reminded them of something familiar. Shelly remarked that the patterns in What Do You See? were "like our bathroom," and "we gotta blanket colored like that," as she looked at We Be Warm Till Springtime Comes. Ann was sure that cats weren't really like Domanska's in The Bremen Town Musicians: "We have a cat and our cat doesn't go around with his teeth hanging out."

At other times, events in the story gave rise to personal reflection. Amanda, who so easily assumed the role of the dog in The Bremen Town Musicians explained: "I love dogs. They're cute. We were gonna get one but my Grandma hadda come cause she kept on messing up the house." Children also expressed feelings which arose from picture books. Sometimes these statements were spontaneous: "That makes me feel cold" Ellen (grade two) said of Jumanji's black and white drawings. When asked "How did that book make you feel?" or "What kind of story is it?" children often replied that it made them feel "sad," "warm," "happy." Nina confided that What Do You See? gave her a "bright and cheery daytime feeling." Janie, however, seemed confused by the question. She replied that Domanska's illustrations made her feel "interesting." When children were asked what they were thinking as they looked at books they often provided opinions in reply. "This part looks cute," "the colors are pretty," "the background is neat," they said. "This doesn't look too fun," said Stella about Diamond's version of The Bremen Town Musicians: "Look at his nails. This is sick - I think this page is very gross" (the "devil's" faces are depicted among the trees). Ellen "liked" What Do You See? "Cause it has lots of detail," while Shelly thought it was "a good book because I liked it." Janie gave more thought to her answer as she looked at Plume's illustrations:

> It looks great the way the rest of the house is - the way he drew lines in the book to make it. I like how he made the lines red there - it looks real - instead of just brown.

Talking About the Illustrations

Children's talk about the illustrations in picture books was revealing of what they saw in pictures and what understanding they may have had of the stylistic qualities in the art work.

As noted above, children saw stories in pictures and often talked about the illustrations by means of retelling. Some children found subplots imbedded within the pictures. Ned noticed a tiny mouse who reappears throughout Spier's Gobble Growl Grunt. "I like the little mouse he kept drawing who kept coming and stealing all the food," he stated. Stella suggested that pictures may contain many stories. "See, there are two things you can figure out," she said as she looked at What Do You See? She pointed to a fly and a moth flying near a "moon" halfway through the book, and then showed me that on the last page they had changed positions: "Well - it looks like there's a fly, but then he moves - he was over here - now he's over here." Stella explained that for her the "best pictures" had "some things" hidden in them. Children in Mrs. Hall's class (4 first graders and 17 second graders) were especially intrigued with books which had "secrets" --books with illustrations that portrayed stories or riddles not presented in the written text. Many children, for example, were intrigued with details in the pictures in Ms Glee Was Waiting a book whose pictures carry a tale different from the written text. Tommy noticed that the tiny clock on the cover said four o'clock and that by the end of the book one hour and five minutes had passed. Other children found a small map on the dedication page which is the clue to a secret contained in the story. Still others found a child's drawing of Ms Glee's house on the title page and connected it to a picture of Ms Glee's house in the story.

This concern with small details in pictures was present in both classrooms. In a group session on one occasion Alan, who had been sitting in the back of the circle (about 12 feet away from the book) and who had only sporadically looked at the book, nevertheless noticed that the small figure in Carle's The Hole in the Dyke was wearing wooden shoes. The first thing that Amy mentioned about The Grey Lady and the Strawberry Snatcher was that the Strawberry Snatcher had mushrooms growing under his feet. Other children mentioned tiny sheep or gnomes in De Paola's The Legend of Fin M'Coul. When the teacher read Dawn, many children pointed out the thin lines of color around the pictures which may have resulted when color overlays did not quite match. Peter pointed out a tiny book lying on the floor on one double-page spread of Shulevitz's Oh What a Noise. The book is less than one inch wide, yet Peter noticed that the title written on its spine was the same as the title of the book.

At other times, children's talk reflected not what was on the page, but some image that they held in their minds; such as Adam's insistence that he ordered his mind to change pictures from black

and white into color as he thought about The Bremen Town Musicians. Throughout the second data collection period, children in Mrs. Jay's class (14 first graders and 7 second graders) referred to black and white as "colors." In most cases they corrected themselves or each other. Meg stated that Diamond's black and white drawings were in "plain colors," while Stella argued that "It can't be plain colors cause those aren't colors -- black and white." Nina referred to the black and white illustrations in We Be Warm Till Spring Comes as "colorful." When asked to explain, however, she answered:

Nina: Oh, I don't know why - because - kind of - like the pictures are dull and white and black an' - well, white's not really a color, it's just - uh - and black is a color, but it's - um - kind of like something like white - and that's all.

Interviewer: That's all, huh?

Nina: Umm - I don't know why I think so.

Margie also seemed confused. "The black and white looks real by the eyes. He puts like black and white in. He puts all the color correct," she pointed out. Shelly seemed more assured. "These aren't really colors," she explained, but in the next breath pointed to Jimmy Jack's quilt. "We gotta blanket colored like that," she confided. These comments were typical of others heard throughout the observation period as children seemed to be attempting to accommodate adult definitions to their own experiences. Nina and Amanda finally ignored the "facts" and gave in to their imaginations as they compared Diamond's drawings for The Bremen Town Musicians with those in Van Allsburg's Jumanji (both books are in black and white). They looked silently through the two books, frowns of concentration on their brows. They were asked, "Now what are you thinking?"

Nina: They look pretty different.

Interviewer: They do, don't they? How are they different.

Nina: Because this (pointing to Jumanji) has a little bit of more colors in it - like -

She was asked what she meant by colors (the interviewer expected correction to come from either her friend or herself). Instead, both girls pointed to the picture where the two characters are seen from above, seated at a game board. The girls pointed to the board. "See, the game - the board - " they stated:

Amanda: It looks like all different colors, doesn't it.

Interviewer: Uh huh.

Nina: And like when you just turn it and you can see white - and you can see a little bit red. You can see the shelf got some white.

Amanda: White -

Nina: (turning the pages) and look at the lamp. It looks like a apple.

Ned may have had the explanation for this phenomenon when he stated that it made no difference to him that pictures were in black and white and not color "because you sort of picture the colors in your mind and that."

Talking About Style

Children's talk centered not only on the content of the pictures, but also on aspects of the artist's style and technique. Many of the children's comments centered on the media the artist used. At times, they showed an understanding of the properties of certain media which allowed them to make logical inferences about what the artist had used originally. Sean, for example, stated that the Provensen's used paint in A Visit to William Blake's Inn because "you can see through the dragon's body." Nina decided that Domanska used water paint because "it has little dark spots and little light spots." Jimmy was able to give a detailed explanation for why Plume used paint in The Bremen Town Musicians: "I think he took a little thing - he took crayon and some water paint and let it dry for a few days and took this little thing - a stick maybe - and made lines."

Other children were unwilling, or unable, to explain their choices for the type of media an artist might have used. Children were quick to guess (correctly) that chalk or charcoal had been used for Jumanji and Where the Buffaloes Begin, but did not seem able to give their reasons. At times, the children's guesses were idiosyncratic. Adam, for instance, stated that Lobel had used felt and oil crayons for On Market Street (executed in ink and wash), and Sendak had used felt and colored pencil in Outside Over There. Ned, when asked why he thought Van Allsburg had used oil crayons for Jumanji, replied rather impatiently, "It just looks like it."

The children also spoke about other technical choices made by the artist. During the class discussion of Caldecott books, the children mentioned such matters of layout as placement of pictures and words. When interviewed, several children talked about the alternating black and white type in We Be Warm Till Springtime

Comes. Janie mentioned the sizes of the pictures and the variation in Diamond's layout in The Bremen Town Musicians. Several children mentioned (and stroked) the smooth paper used in many of the books.

Elements of design most often talked about by the children were color and line. As discussed above, black and white illustrations were the focus of many discussions. Karen expressed her feelings about We Be Warm Till Springtime Comes whose highly modeled black and white figures. "When I read this book I got a special feeling," she stated. Mrs. Hall (the teacher) asked, "How did it make you feel?" Karen answered, "That you're sitting with them. Willie D. Chapman [the author] uses words like he was talking." Amy and Mary read The Garden of Abdul Gasazi by Van Allsburg. They told the class the pictures were "neat, he sketches them with pencil and ink." When someone remarked that "the pictures are pretty good even though they're not in color," Karen declared, "Just because they're not colored doesn't mean they're not good." Steven agreed: "Pictures don't have to be in color. In true life a bridge isn't yellow." Later as he looked at Van Allsburg's Jumanji, also in black and white, Steven elaborated his earlier statement: "It's harder when it's in black and white. It takes more time and you don't just whip through the book." He explained that the monkeys hiding in the closet would have been easier to see if they were in color. "You like to take time," he said. At another time Edward agreed that the book "looks better in black and white," but disagreed as to why. He pointed out a picture in which a python's skin had the same pattern as the chair's upholstery. "You can see it easy," he said of the two patterns, "color would be too hard."

The children also talked about illustrations in terms of "bright colors," "light colors," or "plain colors." Two children (first graders) mentioned the fact that color was a recent invention. While looking at We Be Warm Till Springtime Comes Stella suggested: "I think about the old days like -- because it is in black and white, and black and white aren't colors. And in the old days they didn't have most colors, they just had black and white like." Jimmy made a similar statement about Diamond's black and white drawings:

> It's black and white - and that's how they used to do it. They didn't have color. They - it's never - no one invented color yet. Because black and white isn't color - it should be called what it is. Cause they knew it was called the color of black and white. They don't know if it was going to be a color or not a color, and they never heard of color in their life!

Much of the children's comments comparing artist Peter Spier and William Steig centered on the element of line. Lines were referred to as "straight," "squiggly," "twisty," and "skinny." Gail pointed out that Spier did "good pictures - because they were

straight lines. He drew around it (a garbage can) and they were straight." Only occasionally did a child mention texture or value. "This cat's hair looks rough. So does the donkey's man," said Sean as he looked at Plume's The Bremen Town Musicians. Ellen began a discussion of What Do You See? by referring to "details." When asked to explain she pointed to the frogs and said, "the texture." Meg declared that the "light on the faces" in We Be Warm Till Springtime Comes was "pretty."

Children also attempted to use terms which relate to pictorial conventions. As mentioned above, several children were aware that Domanska's use of color in The Bremen Town Musicians could be called "expressionism." More often, however, the children talked about "realism" Some of the children had difficulty sorting out the term "real" - meaning it could really happen, and "real" - applied as a stylistic term, "realistic."

During the discussion of Caldecott books, the teacher asked children to categorize illustrations by "type" -- "Do they look real or do they look fantasy?" This proved to be a source of controversy or confusion. Meg explained that in On Market Street "some of the pictures look real, except like the person made out of trees couldn't be true, but the pictures look kinda real." Adam thought all the Caldecott books looked real. As the class discussed Bringing the Rain to Kapiti Plain, a book that uses stylized, two-dimensional figures, Adam insisted that the pictures looked real: "I like the way he designed the animals. They really looked like they were real." The children argued that animals didn't really look like that. He insisted: "Giraffes have big spots. Don't giraffes have big spots? Well, anyway, some do." During a discussion of Domanska's What Do You See? (another book with abstract, decorative designs), he again insisted the pictures looked real. Pointing to the purple-grey bird (see Figure 2) he reasoned: "It's got the normal colors that a bird has." Shelley perhaps came closest to the adult notions of realism. As she looked at We Be Warm Till Springtime Comes, she stated, "This looks real cause he copied offa someone" (he looked at real people when he drew).

While the teacher's stated purpose for several activities was to focus on artists and their styles, the children's comments about the artists usually remained egocentric. Kate's written comparison of Spier and Steig is typical of the children's comments. "I think Peter Spier did the pictures because the illustrations look like them and they look different than William Steig's." The children were willing to make judgments, but not to say why they made the judgments. In fact, it is not clear if the children saw the artist as a creator, able to make choices which might contribute to meaning. Except in written exercises, the children seldom called the artist by name -- referring to all artists as "he," "the guy" ("that take a crayon or whatever and make'em hard"). When asked if the three different versions of The Bremen Town Musicians were by

different artists, Jimmy agreed they were, and read their names from the covers. Timmy had other reasons for thinking the artists were different. "They're from different towns," he stated. When pressed to explain, he pointed to the copyright pages. "This is from New York, and this one is the United States of America, and this one is made in New York, New York." When asked if the two from New York were the same, he thought for a while and replied, "umm, they're not the same - cause this is a black and white one and this one is colorful." When other children were asked why they thought the three books were so different, they usually replied, "Because they didn't want it to be the same," or "maybe he just didn't want to make them the same way."

Many children commented on the unusual colors Domanska used for the expressionistic The Bremen Town Musicians, but when asked why the artist might have chosen these colors, they replied, "to make it colorful." Adam simply stated that he didn't know why Domanska chose the colors she did. He was asked if he ever chose colors that aren't real colors. "Yes," he answered, "with Leggos - when they don't have any brown ones I just use red ones, like for brown horses I use red." His choice came from necessity and not artistic license.

Despite the reluctance of the children to take an objective stance when looking at works of art, several comments seemed to indicate that while children may have difficulty verbalizing their understanding about style, they are nevertheless responding to it. Anne mentioned that the Van Allsburg pictures in Jumanji looked "like clay," a response, perhaps to the artist's highly modeled drawings and his background as a sculptor. As Sean first looked through Outside Over There, he was asked why he had picked it up. Several girls chimed in, "because of the goblins." "No," said Sean and thought for a while. "Because they're Jesus babies," he declared, "they look like Jesus babies." The children's art teacher had shown reproductions of Renaissance paintings of the Nativity before Christmas and Sean may have been connecting Sendak's dramatic style with these early works. Anne looked carefully through Diamond's impressionistic black and white illustrations of The Bremen Town Musicians:

Anne:	Ooohm, this gives me the feeling of just watching them instead of reading the book.
Interviewer:	Just watching them?
Anne:	Uh huh - just following them.
Interviewer:	How is that different from reading the book?
Anne:	Well - like I could feel as if I were right there watching them do all this.

Interviewer: You mean it makes you forget it's a book and you feel like you're really there?

Anne: Yeah!

In Anne's case it would seem that Rosenblatt's (1938) "live circuit" had indeed been connected and this one child, unconcerned that the pictures were not in color or were not representational, had truly entered the world of the picture book.

Discussion

The results of observations conducted in two primary classrooms suggest that artificial testing situations and artificial instruments used in the past have only provided a superficial assessment of children's capabilities and understandings with regard to response, reading behaviors and stylistic awareness.

It was found that while children talk about preferences in the course of their interaction with a book, their response is much more multifaceted; varying with the individual and changing over time. The observations revealed that children look at books in different ways: in groups, with other children, and by themselves. One child may attend carefully to pictures in group reading while another child may glance only occasionally at the book. Some children seem to need to look at all the pictures before they read while others want to begin reading immediately.

The descriptive framework developed for primary children's response to picture books as a result of this study shows children to be constructors of affective as well as cognitive meaning. The fact that the observations were conducted in atypical rather than average classrooms may prove to be a strength rather than a weakness of the study for while ethnographic methods make generalization difficult these findings tell us what is possible rather than probable when children are given a context rich in picture books and opportunities to interact with those books.

The curriculum in both classrooms centered on literature and children were encouraged to respond to books both verbally and through other artistic means. Both classrooms had large libraries of picture books available to children which provided a broad base of comparison for children with different reading abilities and interests and increased the possibility that appreciation for a wide variety of literary and artistic styles would be fostered.

In such an environment there are many ways in which children talk about books and a special vocabulary that grows out of their familiarity with a wide range to picture books yet their verbalizations may reflect their limited experience of the world and their responses were often tied to "self." Like the children in Applebee's (1978) study who linked patterns of response with

developmental stages, these children often responded by centering on one feature of the picture book -- "I like how he made the sky" or evaluating the book in terms of their feeling for it -- "It was a good book because I liked it." Other children had begun to categorize their responses: "it's funny," "it's gross," "it's colorful." These categories, while an indication of concrete operational thinking, all remained subjective -- linked to the child's view of the world.

The children's awareness of stylistic qualities in the pictures was also evident from their talk. Unlike the youngest children in Gardner, Winner, and Kircher's (1975) study who thought that paintings could be made in a factory or painted by any animal with a tail, most of the children in this study seemed aware that the picture books had been created by a person; but the artist's identity remained hazy and ambiguous for many of them. They seemed unsure of the artist's ability to make stylistic choices in order to express a particular meaning or enhance the feelings evoked by the story. Differences in style were attributed as much to the city in which the book was published as to the artist's individual manner of expression; and most children did not seem to connect choices they themselves made in the process of creating a work of art with the artist's ability to do so.

Because of the idiosyncratic nature of the children's talking and looking at books, adult categories of stylistic classification were often inadequate and confusing. The more abstract these terms, the greater difficulty children had in applying them. Several children in Mrs. Jay's class were able to connect Domanska's unusual use of color to what they knew of their world. Their statements: "You wouldn't find a red cat" or "You wouldn't see a purple donkey," showed them attempting to apply the term "expressionism." When it came to deciding if pictures looked real, however, they were often at a loss. Like the children in Applebee's (1978) study the worlds of "real" and "make believe" had not been clearly sorted out in the minds of these children. Yet Joshua's insistence that the stylized, flat animal shapes in Bringing the Rain to Kapiti Plain looked "real" may have been as insightful a stylistic appraisal as it was a "wrong" answer in adult terms. The patterned, decorative giraffes he mentioned were a highly suitable match for the rhythmic, repetitious words of the African folk song and, as such, Vidal's pictures extended and enhanced Aardema's text.

These children, then, while not always able to deal with aesthetic qualities of the illustrations in adult terms, were nevertheless aware of style in their own terms. Their descriptions of Sendak's illustrations as "lushy," "antique," and "like Jesus babies," or of Van Allsburg's forms as clay-like or "cold," represent a variety of responses which get to the heart of the artist's style. In addition, their talk about elements and principles of design like color, line, and layout; and their mention of technical

matters such as paper, typography and media show the beginnings of an awareness of stylistic matters which could be extended and deepened by the teacher who is sensitive to the meaning-making capacities of the children.

The teachers in both these primary classrooms were careful to nurture these capacities in children with results that went beyond the findings of previous research. They displayed books attractively, in every available space - cover forward, inviting children to pick them up and take a further look. They displayed books according to particular themes or grouped them together by illustrator or author, allowing children to make comparisons and connections. They took time to read to children, and to allow them to talk about their reactions to books; and they made time for the children to read and talk with each other. They seemed to feel that books that were highlighted in these ways were the books most often remembered by children. They encouraged children to experience books through a variety of modes by providing encouragement, time and materials for expression.

Most important, however, the teachers were willing to listen to children and had the patience to wait weeks and months for their answers, to learn with children rather than teach to them. Mrs. Hall encouraged her children to "look beneath the surface" as they looked at picture books. Amy whose "rather tentative initial reaction to Bangs' The Grey Lady and the Strawberry Snatcher had developed (with Mrs. Hall's subtle guidance) over a period of weeks into a full blown love affair confided with wide eyes, "There could be secrets in every story ... and I didn't know there were secrets in this story till Mrs. Hall showed me." Teachers who can focus attention on stylistic qualities which grow out of a child's interests and capabilities may lead that child to more profound and sensitive responses to meaning in picture books - may lead children, like Amy, Ann and the children in these classrooms to discover the secrets waiting to be found in the world of the picture book.

References

Applebee, A. N. The child's concept of story: Ages two to seventeen. Chicago, Ill.: The University of Chicago Press, 1978.

Bader, B. American picture books: From Noah's ark to the beast within. New York: Macmillan, 1976.

Cazden, C. B. Environmental assistance to the child's acquisition of grammar. Unpublished doctoral dissertation, Harvard University, 1965.

Gardner, H., Winner, M., & Kircher, M. Children's conceptions of the arts. Journal of Aesthetic Education. 1975, 9(3), 60-77.

Hepler, S. I. Patterns of response to literature: A one-year study of a fifth and sixth grade classroom. Unpublished doctoral dissertation, The Ohio State University, 1982.

Hickman, J. Responses to literature in the school environment: Grades K-5. Unpublished doctoral dissertation, The Ohio State University, 1979.

Kantor, K. D. Kirby & J. Goetz. Research in context: Ethnographic studies in English education. Research in the Teaching of English, 1981, 15(4), 293-309.

Marantz, K. The picture book as art object: A call for balanced reviewing. Wilson Library Bulletin, October 1977, 148-151.

Ninio, A., & J. Bruner. The achievement and antecedents of labelling. Journal of Child Language, 1978, 5(1), 1-15.

Olson, J. O., Jr. A comparative study of two methods of teaching art appreciation to fifth graders. Unpublished dissertation, University of Georgia, 1970.

Purves, A. & R. Beach. Literature and the reader: Research in response to literature, reading interests, and the teaching of literature. Urbana, Ill.: NCTE, 1972.

Rosenblatt, L. Literature as exploration (3rd ed.). New York: Noble and Noble, 1976.

Smerdon, G. Children's preferences in illustration. Children's Literature in Education, 1976, 20, 97-131.

Stewig, J. Assessing visual elements preferred in pictures by young children. Reading Improvement, 1975, 12(2), 94-97.

Watson, J. A comparison of picture book illustrations preferred by teachers and children. The Bulletin of the Children's Literature Assembly, 1980, 6(1), 13-15.

Wilson, B. G. An experimental study designed to alter fifth-sixth grade students perception of paintings. Studies in Art Education, 1966, 8(1), 33-42.

A Response to Kiefer's Paper

Hilda Present Lewis
San Francisco State University

Barbara Kiefer's study is noteworthy in two respects; it explores a meagerly researched area and it employs an alternative methodology. Kiefer observes that previous research has failed to deepen "understanding of how a child interacts with books on a continuing basis in the real world". She blames standard research methodology which, in attempting to achieve experimental control, shuts out much of what is unique and meaningful in children's response to picture books. She claims that ethnographic methods, in which children and experimenter converse about books, are better - the interviewer can "probe beneath the surface" and find out what the child is thinking even if "he or she has difficulty putting it into words".

This view assumes a fixed reality to which the researcher gains access. The child reads and responds. The response is then handed over to the researcher; who examines and classifies it. It is analogous to the chicken laying the egg that the farmer inspects and puts with others of the same size and color. But collecting ethnographic data is not like collecting eggs. The participant - observer does not stand apart from the process. The child, the book, and the participant - observer become an interactive system. The child responds not only to the picture book but also to the researcher. The probing questions do more than elicit information - they inevitably shape the response of the child. For this reason, it is important to know the details of data collection. Kiefer ought to inform the reader fully about the interview schedule. She should also have been explicit about parts of the process that are vaguely described - how the "themes emerged" from the pilot study data, the use of the four questions in guiding observations and interviews, and how the final description framework was developed.

Now I would like to consider the contribution of this investigation to knowledge of it's subject. The study first asks, "what variations occur among children as they respond to picture books". Kiefer reports that children vary along all dimensions - reasons for choosing a book, how they talk about it, what they see in pictures, and how they respond behaviorally. These findings are difficult to assess in the absence of information about how they were obtained. The three remaining questions are really not answered at all.

Kiefer does provide valuable information on how children use language. She found that children use technical terms, which at times they understand and at times they misunderstand. They also invent words and devise metaphors. Unfortunately, Kiefer provides

no information as to what is usual and what is rare. She classifies the children's language use as informative, heuristic, imaginative, and personal but does not provide data on frequencies within each category. Nor does she report how well the criteria for assigning responses to categories worked. Was the fit neat, or did many responses fall outside or between the categories?

Of special interest to art educators is children's talk about illustrations. Kiefer reports that children noted detail in pictures; that some children transformed black and white into color in their mind's eye; and that a child's concept of what looks real often fails to correspond to an adult's understanding of visual realism. She found that although children respond to style, they do not seem to be aware that style is intentional - a conscious choice of the artist rather than a property of what is depicted. These findings enlarge understanding of how children see illustrations. They also testify to the perceptivity, sensitivity and subtlety of the researcher, for which Kiefer is to be commended.

A Response to Research Papers by Kiefer and Taunton

Kenneth M. Lansing
University of Illinois

Before commenting on the papers presented this afternoon, I should say that I do not consider myself to be an expert on research. I can do it, I have done it, but my heart is not in it. Like most people in the visual arts, I entered the profession because I enjoyed making art, and I became a teacher because I wanted to do something useful with my life. I did not get into art education because I was enthralled with statistics or because I wanted to spend the rest of my life in lecture-discussion courses. I simply wanted to make art and teach it to anyone who was interested. And that's what I've been doing for more than thirty years. My work has forced me to do a lot of thinking about art and education, and some of that thought has resulted in books and articles on art education.

The reason for burdening you with this is to explain why my comments about the presented papers will not focus heavily upon the technical aspects of research. They will center instead upon the thinking associated with such endeavors.

The Kiefer Paper on Children's Reactions to Illustrations in Books

To save space and to save myself from the effort involved in constructing sequentially related thoughts, I shall list my comments.

1. One of the problems with Dr. Kiefer's research is that we cannot be sure that a different researcher, given the same data, would analyze it and categorize it in the same way she did. She did not correlate her own judgments with those of others to see if children's responses to picture books can actually be separated into the specified categories in the same way by more than one person.

2. Another problem is that it is hard to determine from Dr. Kiefer's paper how ethnographic research differs from an ordinary teacher's experience or behavior in the classroom. Does the recording of conversations make the difference? If an ordinary teacher wanted to know how children respond to picture books in the classroom, how would that teacher act differently from Dr. Kiefer? In what way is this enthnographic method of investigation more vigorous, more scholarly, or more dependable than ordinary methods of inquiry used by the teacher?

3. As Dr. Kiefer points out, some of the children in her study supposedly tried to talk about expressionism in their

responses to certain picture books. Clearly their teacher must have discussed with them, on previous occasions, the expressionism in picture books. But, just as clearly, the children didn't understand the concept. Consequently, one should not describe their comments as responses to expressionism.

4. It is not clear if Dr. Kiefer meant to study the natural, uncontaminated responses of children to picture books or if she meant to study those affected by a teacher. Obviously, the responses she obtained were conditioned by the teacher, but they were unsuccessfully conditioned. What conclusion can Dr. Kiefer draw from such responses? Surely she cannot credit the teacher, the classroom atmosphere, of the presence of numerous books with the eliciting of higher-level responses.

5. Dr. Kiefer says that previous research did not consider the influence of the context in which a child reacts to an illustration, and she contends that the context is likely to make a difference. I'm sure she is right, but the things that would be nice to know are what kind of a difference the context makes and how pronounced the difference is. This study doesn't tell us those things, nor does it tell us if the context makes a difference. Why? Because the illustrations were examined and the responses were given in only one context. Furthermore, when Dr. Kiefer speaks of studying illustrations in context, it's hard to know if she is talking about studying pictures in the context of a given book or studying the book in the context of a book-filled room.

6. It isn't clear to me what the researcher wanted to find out about the possible variations in children's responses to pictures in books. Did she want to find out if responses varied from one child to another or did she want to know if the responses of a single child varied from time to time? Did she want to find out if the responses of groups changed with time, or did she want to know if the responses of an individual changed with time? And, if any of these changes occurred, she doesn't tell us what they were, and she doesn't tell us anything about the variables acting upon the children as time passed by. Consequently, I'm not sure that the results mean anything. It is not surprising, by the way, that individual children respond differently to pictures. I would be amazed if they responded in exactly the same way and never changed.

7. I notice that the pilot study was grouped with the rest of the investigation, and the whole thing was treated as one study. Normally, that isn't done. The pilot study is usually a trial run that allows the researcher to try his tools, techniques, and so on. The "bugs" should be eliminated by the time the final study begins.

8. At one point, Dr. Kiefer says that children vary in the way they look at picture books. But she really means that the time when they look at the illustrations varies.

9. At another point, Dr. Kiefer says that children vary in the way they talk about books. But she really means that the content of their talk varies. It may be informational, heuristic, imaginative, etc.

10. It is interesting that children in classrooms with many books tend to choose most frequently the books read by the teacher. This leads me to ask how such classrooms differ in their effect from traditional classrooms in which the texts are fewer in number and selected by the teacher. This is an important point because Dr. Kiefer suggests that the classrooms with many books are likely to have a better educational effect on children.

11. I would prefer that Dr. Kiefer collect her data in a more systematic way. I would like to know what the data collector asks the children and what she says to them. There are so many factors of a similar nature that could influence children's responses to illustrations that I would like to have those factors controlled. Otherwise, I don't know what the results really mean.

The Taunton Paper on Art Conversations Among Young Children and Adults

There are only three major points that I wish to make about the Taunton paper, but I shall continue to list them:

1. I learned from Martha Taunton's paper that there has been a long-standing debate in art education about whether or not teachers should talk to students about art and attempt to influence their work. I think such a debate is ridiculous. If teachers shouldn't attempt to influence child art, we should forget art education and try to figure out how to let the kids educate themselves. Fortunately, Dr. Taunton says that educators have decided teaching is largely a linguistic act. So the talk that goes on between student and teacher is important. This led Dr. Taunton to want to find out what teachers and students talk about when kids are producing art in preschool settings. Her plan for doing so seems carefully worked out, but the point at which I began to have trouble with the plan is the point where she places the taped talk into categories. Like Barbara Kiefer, Martha Taunton is the only person analyzing the talk. Hence, we have no assurance that another person would analyze it in the same way. Perhaps this is a good time to point out that researchers should also give careful attention to their categorization schemes. The fact that a previous investigator has used a certain scheme does not necessarily mean that the scheme is a good one. We have to know how the categories were developed; we have to know if art talk (or anything else that is being judged) actually falls into those categories. We also need to see or hear some examples of how the researchers do their categorizing because the investigators can easily be mistaken. In the Kiefer study, for example, the youngsters were not

talking about expressionism in art even if the researcher says they were. But a reader would not know that the children were not talking about expressionism if the writer had not given an example of the talk that went on.

2. Another thing that bothers me is the same thing that troubled me with the Kiefer study. Obviously, the nature of teacher-student interaction depends upon the abilities of the people involved and the degree to which they wish to explore appropriate topics in their conversations. The teachers in the Taunton study certainly did not seem to make much of an effort to talk about artistically relevant topics, but other teachers might very well have done so. Consequently, I don't know what one can do with the results except to say that this is what the kids and teachers said in their classrooms on the days we were there. And maybe we could recommend that they talk about something else or something more.

3. The recorded material in the Kiefer and Taunton studies interests me because of what it says about progress in art education. We have been teaching art education courses in universities for a long time. Research has been going on for more than a quarter of a century. But consider the things that teachers and students seem to call art activities--punching holes in pre-cut hearts and threading yarn through the holes; using ready-made stencils to trace out the shape of a heart; discussing expressionism with youngsters who are only beginning to read. These are discouraging things. They lead me to conclude that the things we say here today will not affect education any more than the things that have been said at similar conferences in days gone by.

The Development of Perspective Drawing Skill

J. Anne Murphy
Ontario Institute for Studies in Education

Robert J. Bracewell
McGill University

The present study investigated the development of perspective drawing skills of elementary school age children. In particular, we explored the influence of perceptual and representational factors on the use of convergence and foreshortening when drawing an object viewed in perspective. Further, we examined differences in children's drawing at various ages by examining not only characteristics of the products, but also the procedures children employ in making a drawing.

Although the development of drawing ability has been a constant topic of psychological research, surprisingly little work has been done on perspective drawing. Most of the research has been concerned with occlusion (e.g., Cox, 1978) and the few studies that have studied linear perspective (Willats, 1977; Nodine, Kenny & Nodine, Note 1) have required children to draw complicated compositions. Further, children's competence is often inferred on the basis of their drawings with little regard for the actual procedures they employ in making a drawing.

Three factors may be said to influence drawing an object in perspective: a) the presentation (object stimulus) which the individual must draw as it looks from his position, b) the mental representation the individual has for that object, and c) the graphic production, which begins its influence the moment the first marks are set on paper. This study focused on the two former factors and attempted to control for production factors.

The first factor determines the 'act of perception' and is concerned with Gibson's (1979) distinction between natural and artificial perspective. Whereas natural perspective involves the extraction of invariant or constancy information, artificial perspective refers to the application of a set of principles that allow the drawer to transcribe the 'variant' structure of an object onto the picture surface. The latter requires "seeing in perspective", particularly, becoming aware of the edges and boundaries of the surfaces. A focus on edges and boundaries allows one to view a scene in two dimensions, extracting convergence and foreshortening information and suppressing extraneous depth information. Primary depth cues such as accommodation and convergence of the eyes may interfere with awareness of secondary cues such as linear convergence and foreshortening that are associated with pictorial perspective. (Evidence in support of this last point can be found in the sighting techniques often used by draftsmen to facilitate the

correct mapping of perspective relationships. These techniques involve observing an object to be drawn with one eye while holding a straightedge such as a pencil in the vertical plane of projection in order to measure distance relations between parts of the object.) To test whether the removal of one of the primary depth cues, that of convergence of the eyes, would facilitate drawing in perspective, the study included monocular drawing tasks in which children drew while viewing an object with one eye. If young children draw according to what "they know as opposed to what they see" (Goodenough, 1926), for example, we would not expect monocular drawing to be superior to binocular drawing.

The second factor, mental representation, refers to the child's knowledge of the 'geometry' of physical objects, their parts (e.g., lines and angles) and the transformations that these parts undergo as the relation in space between subject and object changes. In its simplest form, that of 'intellectual realism' (see Phillips, Hobbs & Pratt, 1978), this factor has served to document deviations in drawings that correspond to the physical characteristics of the object drawn. However, such a simple account is quite limited in principle in being able to explain representational influences in drawing. What is required is an approach that a) is able to specify how an individual's mental representation may influence the process of drawing and hence the product and b) is sufficiently elaborated that it can account for the transition from less accurate to more accurate drawing.

With respect to perspective drawing, we think that the basis for an approach to representational factors can be found in the work of Piaget and Inhelder (1967) on spatial cognition. The process of drawing a plane in perspective requires some type of strategy or plan. This is necessary in that while a simple figure may be apprehended as a unit, representing it in a drawing requires the execution of a sequence of activities. Characteristics of the mental representation of the object, and particularly the manner in which it can be decomposed into parts, can be expected to influence the production strategy. According to Piaget and Inhelder (1967), the development of an internalized frame of reference (e.g., knowledge of coordinate axes) permits the use of the operational method of "putting into relation" the elements of a drawing. This method consists of "grouping the elements perceived in terms of a general plan, and starting from a fixed point of reference to which the child can always return" (Piaget & Inhelder, 1967, p. 37).

Attainment of the operational method can be expected to influence drawing performance. For example, it would permit the use of "segmented" drawing strategies such that the lines representing the edges of a plane are drawn discontinuously and coordinated through the use of a reference point (e.g., a sequence such as left edge, top edge, bottom edge, and right edge in which the left edge may serve as the reference point). Prior to the attainment of internalized reference frames, it seems reasonable to assume that

the sequence of drawing should reflect a more wholistic representation for a figure. In particular, the drawing sequence may be expected to be continuous, circumscribing the outline of the figure (e.g., a clockwise production of lines). Consequently, we expected to find a shift in drawing strategy with age from continuous line drawing to segmented strategies.

The work of Piaget and Inhelder suggests that the child's representation of a plane seen in perspective should become increasingly accurate. First, increasing knowledge of geometrical relations should allow children to differentiate between real and apparent shape and hence incorporate projective transformations into their representations of a plane. Second, increasing knowledge of Euclidean relations should permit the accurate representation of angles and line lengths. Consequently, we expected children's drawings to become increasingly accurate with age. Furthermore, we expected to find a correlation between production strategy and accuracy such that segmented strategies would yield more accurate drawings.

In order to represent figures accurately, the drawer must maintain lines in their proper orientation and not be misled by either local cues in the drawing or its context, (i.e., the frame of the page). Such performance aspects of drawing reflect the influence of the third factor, the graphic production. Prior research has shown that children have difficulty reproducing line orientations, particularly obliques (Olson, 1970). This difficulty may be the result of the absence of an internalized frame of reference which causes children to rely on local reference frames as alignment cues (Bayraktar, cited in Freeman, 1980). However, children do have less difficulty drawing obliques from a vertical baseline (Ibbotson & Bryant, 1976). In order to examine perceptual and representational factors in this study an effort was made to minimize performance biases by using a vertical axis for the perspective rotation of a square plane (thereby permitting diagonals to be drawn from a vertical baseline), and by insuring children attended to the model as they drew.

Method

Subjects

Forty-two children were tested from kindergarten (n=10) and grades one (n=10), three (n=11), and six (n=11). The mean ages were 5:8, 7:00, 8:10, and 11:7 years respectively.

Materials

The model used for drawing tasks was a 30.5 cm square styrofoam plane mounted on a stand that allowed vertical rotation of the plane. Children drew on paper using a pencil. An accurate repre-

sentation of the plane from the child's viewpoint is presented in Figure 1.

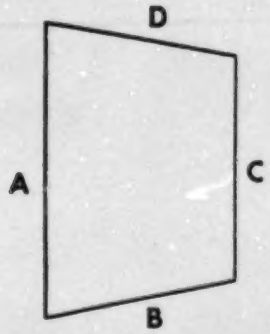


Figure 1. Outline drawing of the model at 45 degree rotation.

Tasks

Each child performed a number of drawing and discrimination tasks. On each drawing task the model was placed 60 cm from the child and oriented at 45 degrees centered to the child's line of sight. The tasks were as follows:

1. Draw the model in perspective - an initial assessment of perspective drawing skill.
2. Monocular drawing tasks (first the right eye, then the left) - an assessment of the perceptual factor.
3. Discrimination tasks - Children chose the best picture of the model from six outline drawings depicting 0, 30, 45, 65, 80, and 90 degree rotations. Discrimination was first made from memory, and then in the presence of the model. This task was intended to assess whether children possessed at least an implicit knowledge representation for the perspective view of the model.
4. Copy task - The model was removed and the child copied the 45 degree outline drawing. This was an assessment of children's ability to reproduce acute angles and diagonals.
5. Draw the model in perspective - an assessment of whether strategy and product had improved over the initial attempt.
6. Delayed drawing of the model in perspective - a post test to assess whether any improvements in performance were conserved.

Procedure

Children were tested individually. The various tasks were administered in the order presented above. The instructions to the

child were to "draw the model the way it looks from where you are sitting". If children did not attend to the model when drawing, they were asked to do another drawing and to check the model while doing so. The first five tasks were done in one session; the post test was done 10 to 14 days later.

Results

Angles, line lengths, and sequence of line production were recorded for each drawing. Five dependent measures were taken from these records.

Two of these measures indexed foreshortening:

1. Foreshortening - a measure of whether the horizontal dimension of the drawing was less than the vertical.
2. Extension - a measure of whether the horizontal dimension of the drawing was greater than the vertical. This measure, not anticipated initially, was taken upon an examination of drawings in the higher grades.

Two dependent measures indexed convergence:

3. Facsimile convergence - a measure of whether the left hand corners of the drawing produced acute angles. Such a drawing would produce convergence of the horizontal edges but might not be an accurate representation. Hence, the label facsimile.
4. Veridical convergence - a measure of whether the left hand corners of the drawing produced acute angles that were accurate representations of the plane viewed in perspective. The error of margin was plus or minus three degrees. Subjectively, the convergence of a representation within these limits is difficult to discriminate from that of a perspective drawing made from a photograph. Hence, the label veridical.

The final dependent measure indexed strategy:

5. Strategy - sequences of line drawing were classified into three types: (a) linear: for example, a clockwise production of lines, (b) linear -1: for example, a clockwise production of lines except for one change in direction, for example, A down, B to the right, C up, D to the right (see Figure 1), and (c) segmented - a sequence in which lines are drawn discontinuously, for example, A down, D to the right, B to the right, C down.

Table 1 presents an outline of the criteria used for the dependent measures.

For each dependent measure statistical analyses were carried out under multivariance assumptions for repeated measures using MULTIVARIANCE Version 6.1 (Finn, 1977).

Table 1

Criteria for Scoring Dependent Measures

Dependent Variable	Criterion	Code
Foreshortening	A+C > B+D (by at least 10%)	1
	otherwise	0
Extension	B+D > A+C (by at least 10%)	1
	otherwise	0
Facsimile Convergence	Angles AD and AB < 87 degrees	2
	Angles AD or AB < 87 degrees (adjacent angle 90 degrees)	1
	otherwise	0
Veridical Convergence	Angles AD and AB > 78 and < 84 degrees	2
	Angles AD or AB > 78 and < 84 degrees	1
	otherwise	0
Strategy	Linear: drawn in continuous sequence (e.g., clockwise production)	0
	Linear-1: continuous except one change in direction	1
	Segmented: (e.g., left side, top edge, bottom edge, right side)	2

The analyses yielded no overall grade level effects for foreshortening, convergence, or veridical convergence. Grade level effects were found for strategy and extension measures. The analyses also revealed effects on performance of the various drawing tasks. Finally, no significant interactions between grade level and tasks were found.

Perceptual Factors

There was greater inclusion of facsimile convergence on the monocular tasks compared with the initial binocular task, $F(1,35)=5.77$, $p<.02$, MSE=.29. Further, veridical convergence was greater on the monocular tasks, $F(1,35)=11.77$, $p<.002$, MSE=.18. Mean scores for these convergence measures on the various tasks are presented in Table 2.

Table 2

Means for Product Measures on Drawing Tasks

	Task					
Independent Variable	Initial	Monocular		Copy	Final	Post Test
		right	left			
Foreshortening	0.13	0.15	0.31	0.77	0.38	0.18
Extension	0.46	0.38	0.41	0.08	0.23	0.41
Facsimile Convergence	0.38	0.38	0.79	1.74	1.26	0.74
Veridical Convergence	0.10	0.31	0.36	0.97	0.51	0.46

The results implicate a perceptual factor in drawing. There were no increases in inclusion of foreshortening features on the monocular tasks. However, over all tasks the representation of foreshortening was complicated by a significant and unexpected tendency to extend the horizontal dimension, an effect that increased with age, $F(3,35)=7.82$, $p<.03$.

Representational Factors

Performance on the discrimination task was accurate for all grades for both the memory and model-present conditions. Thus,

children were able to represent the model at least in an implicit fashion.

The strategy measure was found to vary with age with the segmented strategy favored by older children, $F(3,35)=7.87$, $p<.0004$. Figure 2 presents the shift in strategies over grade.

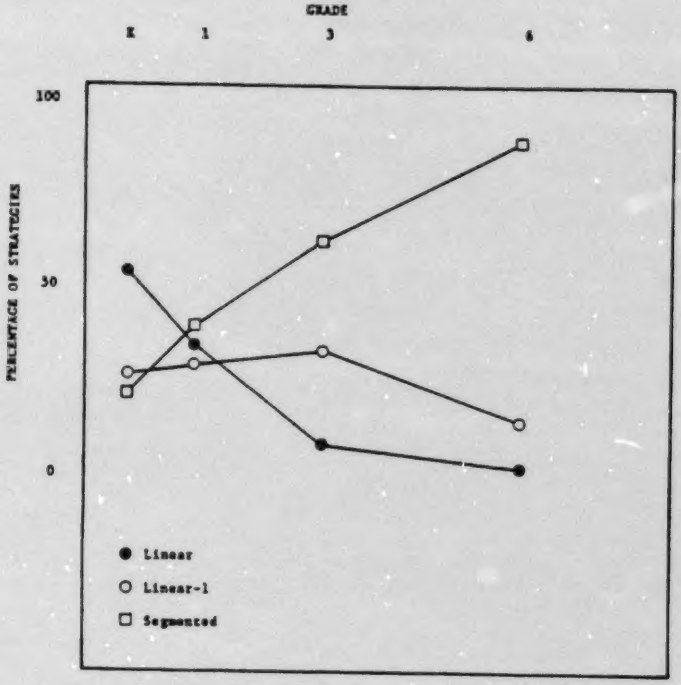


Figure 2. Percentages of strategies used by each grade.

The inclusion of convergence features was not found to vary with age. However, the predicted relationship between strategy and accuracy of representation was supported. Children who used a segmented strategy in producing their drawings achieved a greater number of veridically convergent angles, $r(37)=.44$, $p<.01$, one-tailed test. This relationship suggests that the use of a segmented strategy is related to the ability to operate upon the perceptual information.

Task Effects

Performance on the copying task exceeded that for the other drawing tasks on foreshortening, facsimile, and veridical convergence (see Table 2). This result indicates that problems in achieving accurate representations for the model cannot be attributed to production difficulties in drawing oblique lines.

The sequence of tasks facilitated the inclusion of facsimile convergence, veridical convergence, and foreshortening features for all grades, $F(1,35)=40.67$, $p<.0001$, $MSE=.73$; $F(1,35)=21.63$, $p<.0001$, $MSE=.31$; $F(1,35)=7.42$, $p<.01$, $MSE=.35$, respectively. The trends indicated facilitating effects of the monocular, discrimination and copying tasks considered together. Interpretation of this effect is of course constrained by the decision not to counterbalance tasks. In view of the exploratory nature of the research, it seemed worthwhile to attempt to examine a number of phenomena, leaving more precise designs for further studies. The gains were not conserved on the post test for facsimile and foreshortening measures, but were conserved for the veridical convergence measure. This difference suggests that it is only the veridically convergent drawing that is produced by a stable system of operations.

Discussion

The study has revealed aspects of the roles that perceptual and representational factors play in perspective drawing. In addition, the results revealed two additional phenomena having to do with foreshortening and the drawing of oblique parallelograms that require further study.

The first factor is perceptual and concerns the individual's ability to extract relevant perspective information from a three-dimensional context, for example judging directions and distances of the edges of the surfaces. In order to become aware of the edges and boundaries of surfaces the individual must use techniques to inhibit extraneous depth information that makes it difficult to map the image onto a two-dimensional surface. The monocular viewing tasks seemed to be effective in inhibiting extraneous depth information that makes it difficult to map the image onto a two-dimensional surface. The monocular viewing tasks seemed to be effective in inhibiting extraneous depth information since performance improved on these tasks compared to binocular viewing.

The role played by perceptual factors in perspective drawing would appear to be worth further study both in its own right (see below), and as a necessary control in the investigation of developmental effects of representational factors. In the present study, the perceptual factors manipulated by the monocular tasks influenced drawing at all ages. And although seeing in perspective is a skill that can be learned (Edwards, 1979), apparently some individuals do so spontaneously when drawing. Such is the case with those who can draw "naturally" in perspective from a very young age. A failure to control for such perceptual influences could obscure the determination of developmentally based factors in perspective drawing and may account for the relatively few developmental effects found in the present data.

The second factor is representational and would include knowledge of the figure (e.g., a square has four equal sides at right angles to one another) as well as knowledge of a coordinate reference system (Piaget & Inhelder, 1967). It is the reference system that permits individuals to map perspective relationships from the three-dimensional context of an object to the two-dimensional surface of a drawing.

We speculate that knowledge of a coordinate reference system permits the use of two types of processes that facilitate perspective drawing. First, a coordinate reference system allows the drawer to break a figure into parts and to use an edge as a reference axis for drawing the various contours of an object. The possibility of returning to the reference axis constitutes an operational method that breaks the drawing task into subtasks. The individual can then focus on parts of the drawing task with the overall task of drawing the entire figure. Second, a coordinate reference system enables the accurate measurement of line lengths and orientations by virtue of the ability to focus attention on parts of the figure and the relations between the parts. For example, a reference system would enable the individual to measure subjectively the angle between A and B compared with that between A and an "imagined" coordinate, in this case the horizontal axis.

In the present study, drawing the square with a segmented strategy strongly implicates the underlying use of a coordinate reference system for analyzing the viewed object and organizing the drawing task. Further, one would expect that the use of such a system would be subject to developmental constraints; and the grade effects found for the segmented strategy, in which use was minimal in kindergarten and maximal in grade 6, support this expectation.

The use of a segmented strategy in drawing was found to be associated with more accurate rendering of perspective; however, the relationship was a weak one. Overall, there were few developmental effects found for the dependent measures taken from the drawings themselves. We suspect that the detection of such effects was in part confounded by perceptual influences on drawings that

were inadequately controlled in the present design. Only on the copy task, in which children viewed a drawing rather than an object, did grade level effects emerge with older children drawing more accurately (e.g., the higher grades drew angles AB and AD veridically convergent more frequently than the lower grades, $F(3,35)=3.18$, $p<.05$. On those tasks in which students viewed an object in perspective, developmental effects either were not found or else were in the direction of less accurate representation with increasing age.

Two of these phenomena merit further study. The first was a tendency to extend rather than foreshorten the horizontal dimension of the square, an effect that increased with grade level. This unexpected finding may indicate a convention for representing depth information by length. The second phenomenon concerned the drawing of oblique parallelograms, which implies the use of an isometric perspective system. This occurred in 25 per cent of the drawings of the current study, and subsequent pilot studies with adults have revealed that an even larger proportion of their drawings are oblique parallelograms. In 75 per cent of such drawings by children, and in 90 per cent of adult drawings, the parallelogram is drawn such that the D line ascends to the right (cf, the D line in Figure 1 which descends to the right). While a number of proposals can account for the use of isometric perspective systems (e.g., Willats, 1977), no current model or theory accounts for the asymmetry found in our child and adult drawings. Think-aloud protocols collected from adults while drawing indicate that a part of the explanation for this phenomenon lies in the perception of the D edge of the square. When viewed in perspective, adults frequently comment that the orientation of the lines seems unstable, changing moment-by-moment from that of ascending to the right to that of descending to right.

Reference Note

1. Nodine, C. F., Kenney, J. L., & Nodine, B. F. Metaperception and children's art. Paper presented at the annual meeting of the American Educational Research Association, New York, March 19-23, 1982.

References

Cox, M. V. Spatial depth relationships in young children's drawings. Journal of Experimental Child Psychology, 1978, 26, 551-556.

Edwards, B. Drawing on the right side of the brain. Los Angeles: J. P. Tacher, 1979.

Finn, J. D. Multivariance: Univariate and multivariate analysis of variance, covariance, regression and repeated measures, Version VI. Chicago: International Education Services, 1977.

Freeman, N. Strategies of representation in young children: Analysis of spatial skills and drawing processes. New York: Academic Press, 1980.

Gibson, J. J. The ecological approach to visual perception. Boston: Houghton Mifflin, 1979.

Goodenough, F. Measurement of intelligence by drawings. New York: Harcourt, Brace and World, 1926.

Ibbotson, A. & Bryant, P. E. The perpendicular error and the vertical effect in children's drawing. Perception, 1976, 5, 319-326.

Olson, D. R. Cognitive development: The child's acquisition of diagonality. New York: Academic Press, 1970.

Phillips, W. A., Hobbs, S. B., Pratt, F. R. Intellectual realism in children's drawings of cubes. Cognition, 1978, 6, 15-33.

Piaget, J. & Inhelder, B. The child's conception of space. New York: W. Norton & Co. Inc., 1967.

Willats, J. How children learn to draw realistic pictures. Quarterly Journal of Experimental Psychology, 1977, 29, 367-382.

A Response to Murphy and Bracewell's Paper

Brent Wilson
The Pennsylvania State University

Why do children draw as they do? In the study of children's acquisition of verbal skills where the relationship between symbol and referent are essentially arbitrary and non-iconistic there is little question that the process is one of acquiring conventional syntactic and semantic elements. In the study of the acquisition of graphic skills, however, where the relationship between symbol and referent is at least somewhat iconistic, the contrary assumption is frequently made. There are both art educators and psychologists who believe that every child single-handedly developes his or her own graphic symbol system with little or no cultural input. This seems to be the position taken by Murphy and Bracewell when they say that the three factors that influence perspective drawing are (1) the object, (2) the mental representation of the object, and (3) the act of graphic production. In short, the geometry of the world dictates directly the form of graphic representations. But perhaps we should ask if the development of graphic skills is so radicallly different from the development of other kinds of symbolic skills?

Although the researchers provide valuable insights into the acquisition of perspective drawing skills, I believe that they are actually studying quite a different process from the one that they think they are. If this is so then their insights into the process need drastic revision. Let me sketch two outlines of a more comprehensive theory of graphic production.

I conceive of graphic development in this manner: humans possess a series of graphic biases-in effect they are "wired" to draw by presenting such things as the maximum degree of contrast between horizontal and vertical lines (Schaeffer-Simmern, 1948), to present a minimum of differentiation between sizes and shapes (Arnheim, 1974), and to present objects from the most characteristic point of view (Luquet, 1927). These biases, most readily observed in the drawings of children (but also found in most adults' drawings, too), will persist until they are overridden (Wilson and Wilson, 1982). And by what process are they overridden? They are overcome when individuals follow particular sets of graphic models available to them in the culture. When children draw the converging lines of a plane, it is because the option has been presented to them in the form of drawings, illustrations, photographs, etc. readily available to them in the various cultural media. It is important to note that from the time of the Renaissance, painters, scientists, and art teachers have developed detailed treatises on the science of perspective. (In my own collection I have a mammoth eighteenth-century work on the theory of perspective, and in an appendix of the book there are reviews of

no less than 20 others works on perspective published during that century. Far greater numbers are published today.) Are we actually to believe that little children today spontaneously arrive at a system of perspective that in former years was the lifetime pursuit of brilliant artists, scientists, and teachers? Although it is conceivable that in a few instances perceptions of the geometry of the world might dictate that the lines of a plane "should" be represented as converging, or that the distant edge of a vertical plane be drawn with a shorter line than the near plane, in actuality it seldom happens this way-certainly not for children. It is adult artists to whom the role of graphic, artistic and stylistic inventor falls. As Winner says, "If children naturally invented perspective on their own, then perspective would have been invented long before the Renaissance" (1982, p. 163). It is only because perspective models have become so pervasive in our culture that the young subjects of Murphy and Bracewell's study were able to comprehend, let alone have some success in accomplishing the task.

Let's review the findings in terms of assumptions that have just been made. The children initially drew the plane as a rectangle because of the intrinsic biases for presenting the object from a frontal view, with the maximum of horizontal/vertical line contrast, and minimum differentiation of near and far lines. Children's previous drawings of rectangles provided their own graphic models for non-perspective drawings. Nevertheless, during the following monocular "practice" sessions the children may have begun (tacitly) to conceive of the task of drawing the plane "like perspective drawings they had seen previously," and consequently began to adapt the general perspective model in light of their specific perceptions of the plane. The process I have just described is called "schema and correction" by Gombrich (1961). This process functions in children as well as adult artist. In the Murphy and Bracewell study the power of the specific graphic model is seen in the performance scores of the children when they were asked to copy from a graphic model. The skills they developed during the copying task seem to have persisted in the final drawing task. (Their final drawings were probably also influenced by the practice of following and correcting implicit cultural schema during the initial and monocular tasks.) The fact that the post-test scores decline from the copying scores merely indicates the complexity of the task and the length of time it takes to acquire perspective drawing skills.

The essential point to be made is that children are both constrained and aided by graphic models from the adult world, and the character of the prospective drawing process can only be understood in light of the influence of these models. The process studied was not one of merely observing children in the process of inventing graphic equivalents for perceived objects nearly so much as one of learning to employ and adapt a schema for drawing objects in perspective. When graphic processes are studied a knowledge of

art history as well as psychology provides a distinct advantage in interpreting the results. A knowledge of art history can provide insight into the extent to which a task is universally accomplished, dependent upon cultural models, or even upon models from the discipline of art (Feldman, 1980). Drawing in perspective is clearly a process of employing cultural and discipline-of-art models.

References

Arnheim, R. 1974, Art and visual perception. Berkley: University of California Press.

Feldman, D. H. 1980, Beyond universals in cognitive development. Norwood, NJ: Ablex Publishing Corporation.

Gombrich, E. 1961, Art and illusion: a study in the psychology of pictorial representation. Princeton: Princeton University Press.

Luquet, G. H. 1927, Le dessin enfantin. Paris: Alcan.

Schaeffer-Simmern, H. 1948, The unfolding of artistic activity. Berkley: University of California Press.

Wilson, B. and Wilson, M. The persistence of the perpendicular principle. Review of Research in Visual Art Education, 1982, 15.

Winner, E. 1982, Invented worlds: The psychology of the arts. Cambridge: Harvard University Press.

The Metaphoric Interpretation of Paintings: Effects of the Clustering Strategy and Relaxed Attention Exercises

Hermine Feinstein
University of Cincinnati

Teaching art appreciation yields the skills to specify visual qualities, to identify styles, to recall dates and facts about the artist and the times; to state preferences supported by reasons; and to distinguish, for example, between form and pattern. Those skills, though essential to intelligent viewing, are insufficient. Lacking is the skill to interpret works of art metaphorically.

To interpret metaphorically is to make meaning. Meaning can be considered to be of two general kinds: literal and metaphoric. Literal meaning communicates, denotes. It stands in one-to-one correspondence with its referent and has consensual agreement within a culture. In contrast, metaphoric meaning evokes, connotes. It subsumes literal meaning and moves into the realm of personal experience. As such, metaphoric meaning stands in one to many correspondence with its referent and does not necessarily have consensual agreement within a culture. Yet, metaphoric meaning, while not exactly the same for everyone, does fall within the broad range of common experience (1).

Metaphor is considered by many to be an essential process and product of thought (Langer, 1953, 1957, 1976; Black, 1962; Ortony, 1975, 1979; Rico, 1976, 1983; Feinstein, 1979/1980, 1982; Sacks, 1979; Honeck and Hoffman, 1980; Johnson, 1981). The metaphoric thought process promotes the understanding of one thing, concept, or experience in terms of another. In that process, attributes of one thing are transferred to another. In the transfer, clusters of attributes that belong to one thing interact with those of another. The interacting attributes are like filters which highlight certain associations, suppress some, and redefine others (Johnson, 1981). After the transfer of attributes takes place, ideas, situations, and feelings are reorganized and vivified, paradoxically both condensed and expanded. The result is that associations are generated. Different or deeper levels of meaning are tapped, and new insights emerge. To restate, one thing is understood in terms of another. When the metaphoric process results in a developed work of art, that product is itself a metaphor (Langer, 1957).

If we agree with Langer that art is metaphor, then it follows that students need to be taught how to decipher the metaphor, i.e., engage in the metaphoric process. The purpose of this study (2), one of a series planned, was to teach students a way to interpret paintings metaphorically and to test the effectiveness of that method singly and in combination with other variables.

Two assumptions were explored: first, metaphoric thinking, being holistic, can be fostered by a strategy which de-emphasizes literal/analytical thinking; second, feelings are associated more with metaphoric thinking than with literal/analytical thinking and can be evoked more readily when one is relaxed rather than tense.

Clustering is a search strategy which enables students to construct metaphoric meaning in written forms (Rico, 1976, 1983) and in visual forms (Feinstein, 1979/1980). The strategy is one of rapid searching which inherently precludes analytical thinking. Literal description, analysis, evaluation, and preference are held in abeyance. When using the clustering strategy to respond to a painting, for example, it is scanned quickly for a dominant impression which is written as a word or phrase and circled. Radiating outward from the circled word(s) are clusters of other words, reflecting the painting's qualities and the feelings evoked in the viewer. From the original dominant impression and the clusters, a metaphoric phrase or statement is written which captures the interpretation of the painting. Metaphoric interpretation via the clustering strategy is not an end in itself. Rather, it can be considered a component of the guide for teaching art criticism described by Feldman (1972, 466-484).

Relaxed attention exercises (McKim, 1972; Feinstein, 1979/1980) are designed to release excess mental and physical tension and to promote heightened awareness and concentration. There were seven such exercises, six focused on the head, shoulders, eyes, arms, and hands; one focused on breathing concentration.

Two hypotheses were tested: (a) that subjects taught the clustering strategy to interpret paintings will produce more metaphoric (less literal) responses than control subjects; (b) that relaxed attention exercises before clustering will produce more metaphoric responses than will lectures about relaxed attention. In other words, all subjects were exposed to one teaching strategy designed to encourage the metaphoric interpretation of paintings. The teaching strategy was subsequently augmented in one situation by relaxed attention exercises, in another situation by a lecture.

Method

Subjects

Subjects were 27 junior year Art Education majors, ranging in age from 21-38. The scores of five subjects were excluded from the analyses due to incomplete data, leaving an N of 22.

Stimuli

The paintings were grouped into three types: realistic, abstract, and non-objective (Feinstein, 1979/1980). The three types of paintings are based on the painting's relative adherence

to or departure from realistic depiction and to its relative reduction into fundamental shapes and forms. Thus a type of painting is different from a style of painting, e.g., Fauvism, Surrealism, Minimalism, which refers to historical periods and ideologies. Realistic paintings embody images that are commonly understood and consensually nameable, e.g., in works by Harnett, Cassatt, Hopper, Warhol. Abstract paintings also embody images that are commonly understood and consensually nameable, but the images are distorted in terms of form and color or are displaced, often with a change of scale. The essence of the realistic image, however, is retained in abstract paintings, as in many works by Picasso, Magritte, Matisse, deKooning, Duchamp. Non-objective paintings have minimal referents to the consensually nameable. These referents are the circle, triangle, square and their derivative shapes as might be seen under a microscope and in works by Vasarely, Pollock, and Frankenthaler. The three types of paintings do not have rigid boundaries, but should be thought of as existing on a continuum with some overlap. Prior to the study the slides had been verified as to types and similarity within type by five faculty members of the departments of Art Education and Art History.

Design and Procedures

The study was conducted by the experimenter between February 1 and February 15, 1982 in an art education course entitled, "Response to Visual Forms." Although the course was not one of the experimenter's teaching assignments, the instructor of the course agreed to allot two weeks of class time to the study.

There were two phases of the study. In Phase 1, the clustering strategy was taught and was used by all subjects. In Phase 2, while the clustering strategy again was used by all subjects, half of them engaged in relaxed attention exercises, the other half only heard a lecture about the importance of those exercises.

Phase 1 of the study consisted of four meetings, each approximately one hour and fifteen minutes. During the first meeting, metaphoric interpretation was explained and all subjects were given a pretest to determine the extent to which they could interpret slides of paintings metaphorically. During the second and third meetings they were taught the clustering strategy and given homework assignments. During the fourth meeting they were given a posttest. The tasks were to write metaphoric interpretations of paintings (slides). With the exception of the pretest, the clustering strategy was used to interpret the paintings. For the pre and posttests 24 slides were shown, a group of 12 for the pretest, another group of 12 for the posttest. The slides were divided into three types: four realistic, four abstract, and four non-objective, presented in that order. The posttest slides were similar to the pretest slides, but not identical; each slide was shown for four minutes.

The second phase of the study consisted of one meeting, taking approximately two hours, during which the 22 subjects were randomly assigned to two groups - experimental and control - of 11 subjects each. Both groups used the clustering strategy to interpret a third set of 12 slides, again divided into three types and shown in the above described sequence. Before interpreting the paintings, the experimental group engaged in 15 minutes of relaxed attention exercises; whereas the control group heard a 15 minute lecture about the importance of relaxed attention exercises.

Treatment of the Data

The results of Phase 1 of the study were analyzed with a 2 x 3 factorial analysis of variance using repeated measures on both factors, time with two levels (pre and posttests) and types of paintings with three levels (realistic, abstract, non-objective). The results of Phase 2 of the study were analyzed with a 2 x 3 factorial analysis of variance using repeated measures on one factor, types of paintings with three levels (realistic, abstract, non-objective).

Response Ratings

All responses from both phases of the study were rated according to a six point scale which ranged from literal to metaphoric, 0-5 respectively. There were 792 responses, taking about seven hours to assess. There were eight judges: five faculty members and three graduate students. The faculty were from the Departments of Psychology, Educational Psychology, and Philosophy; the graduate students were from Special Education and Art Education. Seven of the eight judges were selected on the basis of attending a weekly reading group with the experimenter, studying research on metaphor and related topics. The eighth judge, an Art Education graduate student, was selected on the basis of a special interest in metaphor. Approximately three hours were devoted to training the judges. The training materials used were the responses taken from the incomplete data of five subjects. The judging sessions proper occurred on two consecutive occasions.

The judges rated the responses independently. With rating scale and responses to be rated before them, they were shown the slides that elicited the responses. They were told to bear in mind the overriding question: What else can this painting represent? For example, if a response to Hopper's House by the Railroad was an elaborated literal description of the house, a low rating was given, i.e., a 1 or 2 on the scale ranging from 0-5. If a response to the same painting did not refer to the house, but referred to metaphors of loneliness, alienation, old-age, abandonment, and the like, a high rating was given, i.e., a 4 or 5.

Table 1 shows the Frequency Distribution of Interjudge Reliability.

Table 1
Frequency Distribution of Interjudge Reliability

					68 78 28 58 46 23				
48				47 34 38	45 25 24	36 18 17 35 16 13 14	67 57 27 56	12 15	37
.12	.20	.30	.40	.50	.60	.70	.80	.90	

Correlations

Note: Each pair of digits indicates the judges, numbered 1-8, whose ratings entered into the correlation. The mean correlation is .74.

Of the 27 correlation coefficients shown, 19 or 70% are .60 or greater, the smallest being .13, the highest .86, Although there were eight judges and 792 responses, four judges rated the responses of each subject; each judge rated approximately 396 responses (one judge rating as few as 352, another as many as 429).

Results

Phase 1 (N=22: 19 Females, 3 Males)

The results of Phase 1 indicate that the use of the clustering strategy increases metaphoric responses. The posttest mean rating is higher than that of the pretest, $p < .05$, shown by the F of 8.98 in Table 2, the ANOVA summary. The mean overall rating for the posttest is 3.12, and for the pretest 2.71. Those results are displayed in Figure 1.

Table 2

ANOVA of Metaphorical Interpretations for Phase 1:

Pre and Posttest by Types of Paintings

Source	df	MS	F
Between Subjects	21		
Within Subjects	110		
Times	1	5.65131	8.98*
Error Times	21	0.62967	
Types of Paintings	2	1.54673	4.72*
Error Types	42	0.32795	
Times x Types	2	0.36029	1.68
Error Times x Types	42	0.21393	

*$p < 0.5$

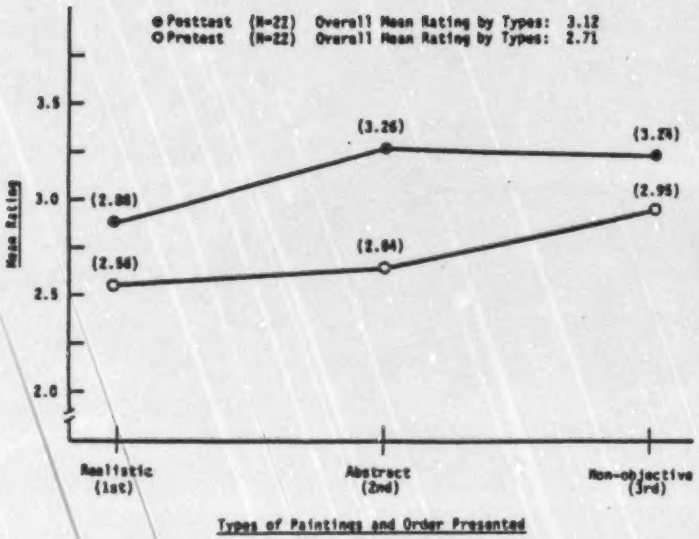


Figure 1. Phase 1: Pre and posttest mean rating by types of paintings and order presented.

Two additional tests were done: one to evaluate the differences for types of paintings; the other to evaluate the interaction effect between pre and posttests by types of paintings. The differences for types of paintings are significant, $p < .05$, indicated by the F of 4.72 in Table 2. There is no significant interaction effect, shown by the F of 1.68. The mean rating for each type of painting differs from one another, as displayed in Figure 1. Realistic paintings are the lowest, abstract paintings somewhat higher, and non-objective paintings still higher. Also evident in Figure 1 is that the mean rating for the three types of paintings increases roughly in the same magnitude on both testing occasions.

Phase 2 (Experimental Group: N=11, 10 Females, 1 Male; Control Group: N=11, 9 Females, 2 Males

The results of Phase 2 indicate that relaxed attention exercises added to the clustering strategy do not significantly increase metaphoric responses uniformly across the three types of paintings. The difference between the mean rating of the experimental and control groups closely approaches, but does not quite reach, statistical significance. The probability level was set at < .05, the level attained is .0527, indicated by the F of 4.24 in

Table 3

ANOVA of Metaphorical Interpretations for Phase 2:

Experimental and Control Groups

by Types of Paintings

Source	df	MS	F
Conditions	1	5.25592	4.24
Error Between	20	1.23944	
Types of Paintings	2	5.75941	16.54**
Conditions x Types	2	1.72058	4.94*
Error Within	40	0.34827	

*$p < .02$, **$p < .001$

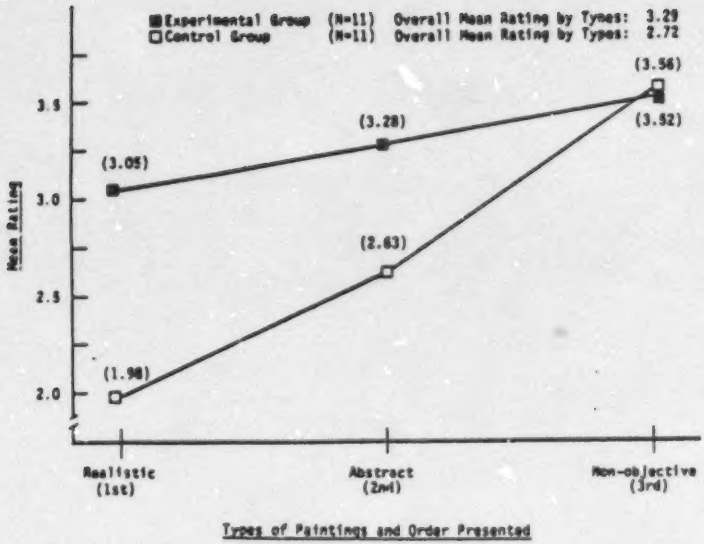


Figure 2. Experimental and control groups' mean rating by types of paintings and order presented.

Table 3, the ANOVA summary. The overall mean rating for the experimental group is 3.29, for the control group 2.72. Those results are displayed in Figure 2.

As was the case in Phase 1, two additional tests were done: one to evaluate differences for types of paintings; the other to evaluate the interaction between the two groups by types of paintings. There is a significant difference for types of paintings, $p < .0001$, shown by the F of 16.54 in Table 3. In contrast to Phase 1, there is a significant interaction effect, $p < .02$, shown by the F of 4.94. The interaction effect indicates a differential influence of training by types of paintings. The mean rating for the experimental group on the realistic and abstract paintings is 3.05 and 3.28; for the control group 1.98 and 2.63, respectively. Those results are displayed in Figure 2. The pattern in Figure 2, similar to that in Figure 1, shows the mean rating for realistic paintings to be the lowest, abstract paintings somewhat higher, and non-objective paintings still higher.

Discussion

Subjects and the Experimenter's Role

That females outnumbered males in both phases of the study could influence the results. Females may respond differently from males to the clustering strategy and to the relaxed attention exercises. Those factors, as well as the age differential, though deemed outside the scope of this study, need to be investigated in future studies. That the teaching was conducted by the experimenter is another factor which could influence the results. Training another instructor was not an option. Rather than postponing the study for an indefinite time, the experimenter/teacher role prevailed.

Interjudge Reliability

Metaphor research, being a relatively new field of study, does not have a large variety of standardized measuring instruments, nor many that consistently yield high positive interjudge correlations (Pollio and Smith, 1980). The high correlations obtained from the newly devised rating instrument, though encouraging, may be due to its simplicity. Recall that the judges were required to rate written interpretations of paintings on the extent to which they were literal or metaphoric, 0-5, respectively. As such, the scale was not designed to determine the quality of metaphoric responses, i.e., whether they were novel or common, more analogic or metaphoric; nor whether they were more anthropomorphic, "feeling-morphic," or "object-morphic." Neither was the scale designed to determine the referential adequacy of responses, i.e., requiring the judges to locate the visual qualities in the work that may have prompted the interpretation (Pepper, 1945). This is not to imply that such scales should not be developed. It is to underscore the

nature and function of the one used in this initial study and to suggest a possible reason for its success.

Phase 1

The main finding of Phase 1 was that the clustering strategy increased metaphoric interpretations in about equal proportion for the three types of paintings. Secondary findings were differences for types of paintings and the absence of an interaction effect.

It is not surprising that use of the clustering strategy increased metaphoric interpretations. In general, when students are taught, they will learn. The clustering strategy engages the student with the work of art on a personal level. Whereas factual knowledge about the work is not a sine qua non, the ability to respond in the "here and now" is. In addition to encouraging personal engagement with the work, the clustering strategy apparently promoted some concept generalization. Recall that the posttest paintings were similar to but not the same as the pretest paintings. Also between the pre and posttest were two teaching sessions and two homework assignments. In those four practice sessions students interpreted paintings similar to but not the same as those in the pretest. In other words, the concepts taught were applied to different instances, i.e., different paintings within and among the three types.

Generalizing the results, however, must be restrained due to the lack of a "formal" control group. This lack reflects one of the reality constraints of doing research, particularly at the college level. Recall that the subjects were junior year Art Education majors. Because of the junior year course sequence and instructional load, to have had a control group would have denied those subjects the opportunity to learn the clustering strategy and would have interfered with the Department's program. An argument also can be made that the subjects functioned as their own "informal" control group since they had not been exposed to the clustering strategy in previous classes. Indeed, when the subjects were asked to interpret paintings metaphorically in the pretest, their scores were lower than those of the posttest.

The issue of randomization of slides arises in the finding of type difference - the mean rating for realistic paintings being the lowest, abstract paintings somewhat higher, and non-objective paintings still higher. As noted earlier, in all testing situations the slides were presented in distinct sets: four realistic slides were shown first, four abstract slides second, and four non-objective slides third. The slides were not randomized. The reasoning was that, given the time constraints, a clearer picture of the results for each type of painting would emerge if subjects were not required to switch categories rapidly. One might accept that explanation but still question the sequence of slide sets. One, however, might argue for total randomization of slides and

maintain that the high ratings on non-objective paintings were due to their third place in the sequence, i.e., the subjects had a chance to practice on the first two types. One also might argue that, randomization not withstanding, non-objective paintings lend themselves to metaphoric interpretations more readily than do realistic and abstract paintings. Therefore, regardless of their place in the sequence, non-objective paintings would have generated the most metaphoric responses. These are possible confounding variables which would need to be controlled in future studies. It is interesting to speculate on what might have happened if the three types of paintings had been randomized; if the sequence of presentation had been reversed; if the identical paintings had been shown during the pre and posttest; if paintings of only one type had been shown; if fewer paintings had been shown.

The other finding was the absence of a significant interaction between pre and posttests by types of paintings. If there had been an interaction effect, the types of paintings that generated fewer metaphors at pretest would have generated relatively more at posttest. But that was not the case. Realistic paintings elicit the fewest metaphors both times, abstract paintings more, and non-objective paintings even more. This finding may be affected by one or all of the several variables mentioned above: non-randomization, the effects of practice, or the relative ease in interpreting non-objective paintings as opposed to realistic and abstract ones.

Phase 2

The main finding of Phase 2 was that relaxed attention exercises added to the clustering strategy did not increase metaphoric interpretations across the three types of paintings. Secondary findings were differences for types of paintings and the presence of an interaction effect.

It is surprising that relaxed attention exercises did not significantly increase the number of metaphoric interpretations for all types of paintings. Generally, when one is more relaxed than tense, there is a freer flow of associations. This finding may be due to the small sample.

Yet when the findings of the two additional tests are considered, the issue of the small sample changes. In general, effects with small samples which achieve statistical significance can be interpreted as reflecting larger effects because the magnitude of the standard error is inversely related to the size of the sample. The finding of the first additional test--type difference--was strong, $p < .0001$. Similar to Phase 1 of the study, the mean rating for realistic paintings was the lowest, abstract higher, and non-objective the highest. The higher mean rating for the non-objective paintings suggests the same explanations as those in Phase 1. Last place in the sequence of presentation, i.e., non-randomization, may have given an advantage to the non-objective

paintings; or perhaps they were easier to interpret than abstract or realistic paintings.

To further explain the strong difference between painting types, it is necessary to consider the second additional finding, the interaction effect, $p < .02$. The control group's mean rating for realistic paintings was lower than the experimental group's, 1.98 and 3.05 respectively. This difference was probably due to the lecture. The discursive nature of the lecture paralleled the literal nature of the realistic paintings, which were shown first and thereby impeded metaphoric responses. Because realistic paintings, by definition, embody consensually agreed upon and readily nameable phenomena, the paintings are likely to elicit literal interpretations. One is inclined to name what one sees. Naming is primarily an analytic process which by nature tends to obstruct metaphoric interpretations, primarily a holistic and immediate process. In other words, two processing modes compete for primacy, and the one operating at the moment usually "wins." The notion of an impeding effect of the lecture on the control group's mean rating for realistic paintings is given added credence by the group's subsequent increase in metaphoric interpretations of abstract and non-objective paintings.

Also consistent with the foregoing explanation regarding the interaction effect is the experimental group's higher mean rating for realistic paintings. Although the finding concerns the non-confirmed hypothesis, a speculation is offered. It may be that relaxed attention exercises do make a difference in the metaphoric interpretation of realistic paintings. The tendency to interpret literally those images imbued with literal cues is restrained when one is somewhat relaxed. The exercises, apparently, did not influence the interpretation of abstract or non-objective paintings.

Summary and Conclusions

The premise of this study is Langer's contention that art is metaphor. The purpose of the study was to teach students a way to interpret paintings metaphorically and to test the effectiveness of that method singly and in combination with other variables. Explored were two assumptions: first, that metaphoric thinking can be fostered by a strategy which de-emphasizes literal thinking; second, that feelings are associated more with metaphoric thinking than with literal thinking and can be evoked more readily when one is relaxed rather than tense.

Two hypotheses were tested: (a) that subjects taught the clustering strategy to interpret paintings will produce more metaphoric (less literal) responses than control subjects; (b) that relaxed attention exercises before clustering will produce more metaphoric responses than will lectures about relaxed attention. A newly devised rating instrument yielded high postive correlations. The first hypothesis was supported, the second was not supported

but by a small margin. Related to those hypotheses were four provocative findings which warrant further investigation. Because the study is the first of its kind and has certain limitations, the findings may not be generalized but must remain within their contextual confines.

The study's educational significance, of course, is a different issue. If one believes in the value of metaphoric thinking and agrees with Langer that art is metaphor, teaching students to think metaphorically could have an educational return that far exceeds the investment. Once having learned to metaphorically interpet works of art on a personal level, meaning is expanded and enriched. With additional training, it is not only possible to become more sensitive to society's visual metaphors, but also to begin to question the values embedded in them.

References

Black, M. Models and metaphors. New York: Cornell University, Press, 1962.

Dewey, J. Art as experience. New York: Capricorn Books, 1958.

Feinstein, H. A college drawing curriculum integrating Langer's theory of symbolization and aspects of hemispheric processes (Doctoral dissertation, Stanford University, 1979). Dissertation Abstracts International, 1980, 40.

Feinstein, H. Meaning and visual metaphor. Studies in Art Education, 1982, 23(2), 45-55.

Feldman, E. Varieties of visual experience. New Jersey: Prentice-Hall Inc., 1972.

Honeck, R. P., & Hoffman, R. R. (Eds.). Cognition and figurative language. New Jersey: Lawrence Erlbaum Associates, Publishers, 1980.

Johnson, M. (Ed.). Philosophical perspectives on metaphor. Minneapolis: University of Minnesota Press, 1981.

Langer, S. Feeling and form. New York: Charles Schribner's Sons, 1953.

Langer, S. Problems of art. New York: Charles Schribner's Sons, 1957.

Langer, S. Philosophy in a new key (3rd ed.). Massachusetts: Harvard University Press, 1976.

McKim, R. Experiences in visual thinking. California: Brooks/Cole Publishing Company, 1972.

Ortony, A. Why metaphors are necessary and not just nice. Educational Theory, 1975, 25, 45-53.

Ortony, A. (Ed.). Metaphor and thought. London: Cambridge University Press, 1979.

Pepper, S. The basis of criticism in the arts. Cambridge: Harvard University Press, 1945.

Pollio, H. R., & Smith, M. K. Metaphoric competence and complex human problem solving. In R. P. Honeck & R. R. Hoffman (Eds.), Cognition and figurative language. New Jersey: Lawrence Erlbaum Associates, Publishers, 1980, 365-392.

Rico, G. L. Metaphor and knowing: Analysis, synthesis, rationale. Unpublished doctoral dissertation, Stanford University, 1976.

Rico, G. L. Writing the natural way. Boston: Houghton Mifflin Company, 1983.

Sacks, S. (Ed.). On metaphor. Chicago: The University of Chicago Press, 1979.

Author Notes

For those interested in replicating the study, a list of slides, facsimiles of materials and instructions for their use are available from the author upon request.

Footnotes

1. A fuller account of the concept of meaning and metaphor can be found in Feinstein, 1982.

2. An abridged version of this study was presented at the National Symposium for Research in Art, University of Illinois, September 24, 1982.

A Response to Feinstein's Paper

Brent Wilson
The Pennsylvania State University

Metaphor is indeed an important means by which meaning is developed in art as in almost every other realm of human activity. And Feinstein rightly points to the essential role that the metaphoric interpretation of works of art plays in revealing new, deeper, and more elaborate dimensions of meaning. I am troubled, however, by the philosophical notions in which she grounds her study. Although there is not space for a careful arguing of the points, I can at least suggest what is problematic for me. She writes, "If we agree with Langer that art is metaphor." I most certainly cannot agree. Are art and metaphor indistinguishable? Is every instance of metaphor to be considered as art. A far more modest, and yet equally useful, claim might be that art involves metaphor, or that art frequently functions metaphorically. And it is most certainly not the case that since "art is metaphor, then it follows that students need to be taught ways to decipher the metaphor." Perhaps metaphoric interpretation does have a privileged role to play in the process of revealing the meaning of works of art, but what might actually follow is that if we desire meaning and since art is meaningful, then we might use metaphoric means to explicate the meaning of art.

But let me turn to the aspects of the paper that I feel far more comfortable in criticizing-scales and classifications. To explicate students' metaphoric performance Feinstein employed a five-point scale that ranged from literal to metaphoric. Thus a distinction was made between degrees of metaphoric power and pungency. No distinctions were made, however, among the varieties of metaphor. Has the researched asked too little about metaphoric behavior? I think so. There is so much more that we could know, and should know about the metaphoric responses of the subjects. Surely all metaphors are not created equal. The responses given to Hopper's House by the Railroad, for example, included "loneliness, alienation, old-age, and abandonment." Old age is a tired description of how the building looks, and seems of a very different order from the other three. Not one of the responses appears to be particularly original. Feinstein herself begins to suggest some of the possible distinctions among the responses (that may or may not have been incorporated into her scale) where in her report she points to "analogic," "anthropormophic," "simile," "allegory," "anecdotal," etc. Each of these could be considered a distinct type of response relating more or less to metaphoric behavior. If the analysis process had begun with a classification by metaphoric type followed by a relative judgment about how ordinary or novel the usage of the metaphor type seemed to be, then she would have developed an extremely detailed and potentially useful instrument for assessing the specific metaphor-generating abilities,

strengths, and weaknesses of the students with whom we work in art education.

It may be, I cannot be sure from the information given, that the clustering strategy employed as the training method may actually have encouraged certain types of superficial metaphoric responses and discouraged other deeper ones. As I read the examples of responses that were rated highly I thought, they really seem very ordinary. (It would be helpful to see examples from each point of the scale.) Did any of the subjects give metaphoric responses that possessed the form, sensitivity, and exquisiteness of poetry? It is not possible to tell from the report. And if there were sensitive poetic-metaphoric responses, were they merely classified at the high point of the scale along with "old age" and "loneliness?" If such was the case, is not there a need for a much higher "high point," or a more sensitively drawn distinctions among metaphoric types?

And now I must be candid in stating that I have been unfair in my response inasmuch as I have criticized the study more for what it did not possess than for what it did. It is an important study especially because it sensitizes us to the possible effects of teaching our students to respond metaphorically. Still, I am troubled by the last sentence of the paper, "Clearly, from the evidence presented, those [metaphoric] skills are easily and quickly learnable." Perhaps the rudiments of the process are easily grasped and readily employed at an elementary level. High level metaphoric responses, however, are the product of years of practice and struggle, and surely not the result of "relaxed attention exercises." Ask any good poet or critic.

Changing the Quality of Schooling Through Aesthetic Education

Nanthalia Washington
CEMREL, Inc.

Educators clamor about the goal of developing students' critical thinking capacity, yet schools too often produce acquiescent students who are either unable or afraid to think critically. This was not the case, however, in the classrooms of teachers who implemented aesthetic education curricula in 1980-82 as part of a CEMREL curriculum project. The aesthetic education students emerged, after those experiences, showing notable critical thinking capacity compared to students who had not had such experiences (Hall et al., 1982).

The artistic domain has been one of the major (and few) domains in which children are engaged in experiences in which the taken-for-granted aspects of their lives are critically examined. Aesthetically trained persons are credited with exceptional perceptual, expressive, and transformative powers. Beyer (1979) suggests that it is the political dimension inherent in the critical thinking orientation of aesthetic experiences--their ability to make us see ourselves and our relation to others in new ways--that accounts for the lack of such experiences in "traditional" schooling.

The CEMREL aesthetic education curriculum offered the Project teachers an alternative to "traditional" pedagogy. The purpose of the present study is to describe the variations in and origins of the ways two of the Project teachers put this form of critical thinking pedagogy into practice.

Method

The school of interpretive social science provides the methodology for this study. Much of the research in education has been conducted in a "black box" fashion which has not included the study of everyday socializing and educative process as they occur in schools (Berlak & Berlak, 1981). The general criticism of such research is that it is incomplete. From the critics' perspective:

> It is impossible to know the effects of schooling, individual, social or economic, without direct study of how human thought and behavior both affect and are affected by social process and structures.

The particular interpretive language I use in the study is the Berlak and Berlak Dilemma Language of Schooing Acts. The dilemma language and each of its terms - each dilemma - represents "contradictions simultaneously in persons' consciousness, the situation,

society and culture, that are manifest in one particular form of institutional life, schooling" (Berlak & Berlak, 1981). The dilemma language is merely one way to formulate and inquire into issues concerning the place of schooling in social change, but it acknowledges the continuous reflexivity of persons and environment. This characteristic of the language gives it interpretive power and "flavor" which is noted in the concept "pattern of resolution."

A pattern of resolution to a dilemma refers to a set of acts that includes an internal process of responding to a dilemma and a set of observable behaviors. The Berlaks contend:

> If we take a pattern of resolution as a unit of analysis, apparently inconsistent or exceptional behaviors are not ignored, but are seen as a part of a dynamic, reflexive combination of opposites. A pattern of resolution then, will include behaviors which, though apparently inconsistent with each other, are consistent with one or the other horns of the dilemma. Thus, one may identify the less frequent 'minority' or exceptional modes of resolutions as well as the dominant or more frequent modes.

The conception "pattern of resolution" joins the regularities in behavior, linking teachers' consciousness to their experiences in the recent and distant past that live on in the present acting moment. Following Meadian concepts, in addition to the observable behaviors, the pattern includes internal processing of past images, future vision and present context. The internal processing is captured in the Berlaks' concept of "origin". Berlak and Berlak formulate the problem of explaining teachers' schooling behavior this way:

> What in teachers' social biographies and in the history of the institutions, the society and the culture, together with the present set of circumstances, shapes teachers' resolutions to the dilemmas of schooling?

Theoretical Framework

The curricula work done by Berlak, Freire, Giroux, and Shor form the bases of critical thinking pedagogy as it is used in this study. The major facets of this sociological view of critical thinking pedagogy are succinctly represented by Giroux (1978). Giroux suggests that the basic assumptions underlying critical thinking should form the programmatic groundwork for creating critical thinking pedagogy. Those core assumptions are: (1) a relationship exists between theory and fact, and (2) knowledge cannot be separated from human interests, norms and values.

Related to the two assumptions about critical thinking is a procedural issue that centers around what Giroux calls the contextualization of information.

> Students need to learn how to be able to move outside of their own frame of reference so that they can question the legitimacy of a given fact, concept, or issue. They also have to learn how to perceive the very essence of what they are examining by placing it critically within a system of relationships that give it meaning. (Giroux, 1978)

Also related to the assumptions at the core of critical thinking is a second facet of critical thinking pedagogy, classroom social relations:

> Any approach to critical thinking, regardless of how progressive it might be, will vitiate its own possibilities if it operates out of a web of classroom social relationships that are authoritatively hierarchical and promote passivity, docility, and silence. Social relations in the classroom that glorify the teacher as the expert, the dispenser of knowledge, end up crippling student imagination and creativity; in addition, such approaches teach students more about the legitimacy of passivity, than about the need to examine critically the lives they lead. (Giroux, 1978)

The "traditional" practice of dispensing particular bodies of knowledge to students is counter to the critical pedagogical practice of showing students varied techniques and criteria for making and judging knowledge. These conflicts in the treatment of knowledge are captured by the "knowledge as given vs. knowledge as problematic" dilemma. This dilemma represents a view of public knowledge as truth "out there" while the "problematical" pull is toward treating knowledge as constructed, provisional, tentative, subject to political, cultural and social influences . . . looking critically at what has previously been taken as given or beyond question.

In addition, teacher domination, implicit and explicit, of all aspects of student learning is widespread and has a long history. Critical thinking pedagogy requires dialogue. These social relations controversies are represented, in part, by the Berlaks' "child as person vs. child as client" dilemma:

> The child as person pull is towards regarding and relating to students as fellow human beings, thereby acknowledging the common bond of humanity between the teachers and learners. The alternative perspective is towards treating students as clients--receivers of professional services, time, energy, knowledge, skills, that fulfill their needs.

Using the above dilemmas and other terms of the Berlak and Berlak dilemma language, I will describe the way two teachers put

into practice a curriculum which embodied critical thinking pedagogy, the aesthetic education curriculum.

Aesthetic education is considered to be a form of critical pedagogy because it has both conceptual and operational components of such teaching approaches. The fundamental connection between aesthetic education and critical thinking is, in part, within the relationship between art and science. Beyer (1979) puts the connection this way:

> Art and the aesthetic have the power to make us see our world differently, to view our individual and collective situations from a new perspective and change how we will respond to the events in our lives.

The particular version of aesthetic education which is used in this study is the CEMREL teacher-collaborated aesthetic education curriculum. The curriculum training institute and materials for the 1980-82 Project included objectives and activities for enhancing perception and critical responsiveness.

The principles that guided the aesthetic education curriculum training imply critical thinking teaching approaches. The most explicit indicators are the following components:

Content: Sensory and arts-based concepts, principles, and processes, emphasizing perception and analysis of the artistic elements and their functions.

Learning Activities: Characterized by (1) open-endedness that encourages originality, elaboration, divergence; (2) exploration and experimentation; (3) problem solving/decision making; and (4) student interaction with peers and materials.

Sample Analysis

In order to determine patterns of dilemma resolutions, the methodology required the observation and recording of schooling acts and the teachers' views of their own behavior. The sources of this information are observation notes, formal and informal interviews, teachers' logs and questionnaires. The following data sources will be used to provide access to the antecedents of the teachers' schooling patterns, with respect to critical thinking pedagogy: formal interviews, teacher questionnaires, informal conversations, school staff interviews, and documents.

Two of the 11 Project teachers were selected for the present study. Selection criteria were contrasts in amount of teaching experience, race, arts training, school setting, and quality of implementation of the aesthetic education curriculum.

The Berlak and Berlak Dilemma Language was the interpretive language. In the following sample analysis, I will use only two of the 16 dilemmas to view a lesson taught by one of the two teachers. I will analyze treatment of the curriculum content with the "knowledge as given vs. knowledge as problematical" dilemma, treatment of students with the "child as client vs. child as person" dilemma.

The following sample analysis is focused on a lesson taught by Mrs. Richards to her fourth grade class. It took place in mid November, 1980, the first year of the Project. This lesson was a part of the aesthetic education unit, Creating Word Pictures, which has the following general goal:

> The student will increase his ability to communicate effectively and imaginatively in the English language, both orally and writing, by creating novel word combinations, by describing the connotations of words, emphasizing the senses, and by drawing specific, meaningful analogies.

Patterns of Resolution: Observable Teaching Behaviors

Knowledge as given vs. problematical dilemma. Mrs. Richards had a pattern of alternating from one pole of this dilemma to the other. The focus of the Creating Word Pictures lesson was on the "specificity of word selection" - an important part of image making in verbal communication. The teacher and students discussed the story until the children grasped the idea that people select and manipulate words for the purpose of creating mental images in the minds of others. Mrs. Richards reiterated, "At first the girl in the story did not give them (the listeners) the right meaning. She needed words that described the monster. Did she use the senses to tell it?" This clarification of the process of conveying images through word selection revealed the constructive nature of written communication - a "problematical" resolution to this dilemma. During the second segment of the period, students were engaged in creating their own images. They were to experiment with word cards until they constructed an image that conveyed meanings to others. They make the same kinds of choices literary artists make. This activity served in pointing out the alternatives available in portraying an image. It helped students judge literary content as the products of human agency - "problematical" resolution to this dilemma.

Alternation to the "given" pole of the dilemma occurred sporadically and briefly during the first segment of the lesson. Mrs. Richards sanctioned a particular vocabulary, in one instance, accepting only the word "imagination" (the term used in the teacher's guide) to describe a tool for communicating images to others, even though other answers given by the students were correct. The "given" emphasis was also seen in another instance: The emphasis of the lesson was on specificity of word selection in producing

mental images, but Mrs. Richards' constant reminders were focused on grammatical rules--adjectives placed before nouns, etc.

The strongest pull toward the "given" pole was manifested as the students engaged in the final segment of the lesson, in which they shared the images they had created. Though word specificity was the criterion for increasing accuracy in communication, Mrs. Richards cautioned against using too many words. And though the sharing of their monster descriptions was an exercise in communicating effectively and imaginatively, Mrs. Richards' request for use of "more words" and "putting words together" converted the activity to mastery of a set of procedures. Those responses that implied one particular way of producing images were "given" resolutions to this dilemma. Also, the absence of discussion about students working as literary artists reduced the critical and creative (problematical) nature of the lesson.

In summary, Mrs. Richards displayed an alternating pattern of resolving this dilemma. While adhering to the curriculum guide and materials, Mrs. Richards engaged students in "problematical" experiences, in literary processes. However, when extending the lesson with activities of her own design, she displayed a more "given" mode of teaching, having the students focus on mastery of the mechanics of written communication.

Child as client vs. child as person dilemma. Mrs. Richards displayed ironic behavior in the treatment of students just as she had done in the treatment of content; she alternated between "child as client" and "child as student" poles of the dilemma.

While Mrs. Richards and students discussed the importance of word specificity in conveying mental images, the teacher dominated the discussion. The occasional limits Mrs. Richards placed on students' behavior ("No talking this minute." "You don't need all of these words.") reduced student autonomy and creativity. Mrs. Richards' standard setting kept her in the role of expert - a "child as client" resolution.

At other moments during the lesson, Mrs. Richards gave students opportunities to use their own ideas: "Remember, you are describing what you dreamed about." She treated students like equals when she shared her pleasure over some of the images they created, and she responded to some with facial expressions which delighted the children. These moments were resolutions on the side of "child as person."

Mrs. Richards scolded one student, "You don't need all of these words," and immediately turned to the whole class and said, "Remember, you are telling what you dreamed about." This example exemplifies her general vacillation between relinquishing and retrieving expertise, and activity domination throughout the

lesson. What explains the ironies in Mrs. Richards' schooling behavior, in her dilemma resolutions?

Patterns of Resolution: Internal Responses to Dilemmas

Mrs. Richards' educational experiences: Mrs. Richards is a veteran teacher with more than 20 years of experience in teaching language arts and reading. She has a reputation as one of the best teachers at her school. Desiring to do her usual competent job when assigned to teach aesthetic education, she taught it "by the book." Thus, she covered the "problematical" experiences included in the curriculum materials.

Mrs. Richards had pulls away from the "problematical" orientation of the aesthetic education curriculum which were just as strong as her pride and her desire to competently implement this new content. These pulls toward the "given" pole stemmed from Mrs. Richards' education training and her 21 years of traditional schooling practices.

Even after implementing aesthetic education for a few months, this veteran teacher continued to be primarily concerned about students' preparation for the future as translated into the societal index of pupils' achievement in the "basics". She explained:

> I don't teach it (aesthetic education) everyday, because like I said, I guess I'm so 'traditional'. I just like that reading book, that language book. But I do know that all of this is brought in, the vocabulary and everything, can be brought into that CEMREL aesthetic education. And I know that the reading will be included . . . the language and what have you. But it's just not like going back to the book--going directly by the text. But it's all right.

Mrs. Richards' alternating resolutions to the "child as client vs. child as person" dilemma was also a pattern of responses to the conflicting tendencies between the aesthetic education curriculum and her traditional orientation. The amount and kind of control that should be relinquished to students during many of the aesthetic education activities is what Mrs. Richards (and other teachers in the Project) called a "new approach" to classroom control. Mrs. Richards admitted, during an informal conversation, that it is hard to give students the amount and kind of autonomy recommended for aesthetic education after over 20 years of doing it the opposite way. In addition, she is proud of her history of strict classroom management, as it is a traditional indicator of the good teacher.

Mrs. Richards' school setting. There were conflicting tendencies in the school context which acted upon Mrs. Richards with

respect to carrying out the "problematical" orientation of the aesthetic education curriculum. First, the school district was ambivalent about goals for this school, converting it to an arts optional school, yet stressing standard achievement test scores. After 21 years of teaching, Mrs. Richards was acutely aware of accountability in terms of achievement in the "basics" and was, therefore, reluctant to spend school time on aesthetic education. This resistance partially accounted for the way she covered all of the activities in an aesthetic education unit lesson during a portion of the class period and then for the remaining time, she returned to activities focused on the given set of elements or procedures in the lesson, especially those related most closely to language arts. The "knowledge as given" moments were accompanied by the "child as client" treatment.

An influence on Mrs. Richards' teaching of aesthetic education at the level of including "problematical" experiences, was her loyalty to the principal who displayed vision and tenacity in efforts to develop an effective aesthetic education curriculum. There was an additional influence that caused Mrs. Richards to continue the full spectrum of content and social relations required by the aesthetic education curriculum in spite of opposing "pulls". Although the basics remained sacred to her, Mrs. Richards observed the students' accomplishments and enjoyment as a result of aesthetic education experiences. Mrs. Richards reported: "Aesthetic education is more than I thought it was." She referred to the enhancement of students' achievement in the "basics" and increased enjoyment of school.

Exploring Connections Between Patterns and the Quality of Schooling

The lesson described above shows Mrs. Richards' consistent pattern of alternating from one pole to the other of the "knowledge as given vs. knowledge as problematical" dilemma and the "child as client vs. child as person" dilemma. Clarification of past experiences and characterization of the school setting helped us identify the tensions to which Mrs. Richards was responding. On the one hand, she engaged in the traditional practice of treating school content as "given" and children as "clients." On the other hand, she was assigned the task of implementing a new curriculum that demanded treating content as "problematical" and children as "persons."

The lesson analyzed above took place in the Autumn of the Aesthetic Education Project's first year. At that point, we found Mrs. Richards practicing obedience to both teaching approaches - both poles of the dilemmas - at different moments during the class period. This was not surprising when we considered the strength of the "pulls" toward both poles. That is, on the one hand, Mrs. Richards had developed a comfortable teaching approach based on twenty years of traditional teaching experience. On the other hand, the district, principal, and students exerted pressures in

favor of implementing aesthetic education which had a problematical orientation.

In the final dissertation analysis, I argue that Mrs. Richards later perceived logistical difficulty with "switching" schooling behavior from pole to pole. By the second year of the curriculum project, there was less external pressure on Mrs. Richards to implement the aesthetic education curriculum but internal dilemmas emerged more strongly, causing her to question some of her traditional practices with respect to critical thinking pedagogy. She grasped (internalized) some of the alternative schooling behaviors made available by the aesthetic education curriculum. Though her dominant schooling patterns remained characteristic of traditional pedagogy, the stronger exceptional "pulls" toward a critical thinking approach provided her students with more critical thinking schooling experiences than they otherwise might have encountered in Mrs. Richards' classroom.

This kind of illumination of the schooling process can provide insight for training teachers to teach in ways that enhance critical thinking capacity. The analysis has implications for curriculum development as well. Most importantly, as a result of the numerous aesthetic education experiences over the two-year period, Mrs. Richards' students showed greater quantity and quality of critical thinking characteristics than students who were not provided such experiences. We can speculate further that students who have been exposed to aesthetic education are more likely to take a critical stance toward their experiences and eventually toward knowledge and society than those who are not introduced to this form of critical thinking pedagogy.

References

Berlak, A. & Berlak, H. The dilemmas of schooling. London, Methuen, 1981.

Beyer, L. E. Schools, aesthetic forms, and social reproduction. Madison: University of Wisconsin, 1979.

Giroux, H. A. Writing and critical thinking in the social studies. Curriculum Inquiry, 1978, 8(1).

Hall, B., Washington, N., Prunty, J., Goodman, G. & Hively, W. Research on implementation and effects of aesthetic education. National Institute of Education, 1980, 1981, 1982.

Music and Reading/Language Arts: An Exploration of Relationships

Linda L. Kelley
University of Pennsylvania

An exploratory study combining both quasi-experimental design and descriptive approach using ethnographic techniques was carried out in the first grades of a parochial school to explore the possible relationships between music and reading/language arts. The study sought to observe and document the music-reading relationships and to identify for future study specific processes which underlie it. The present paper raises concept development and metalinguistic awareness as possible secondary areas operating in this context.

As a student, participant, and teacher of both music and reading, I thought there seemed an intuitive connection between these two fields: Both deal with symbol systems, sound, and communication. I initially began studying this interaction by integrating music and reading in my teaching and informally observing the effects on and reactions of the children. This general observation led me to undertake two pilot studies integrating the performing arts with the language arts in two federally funded summer programs with inner city elementary school children. These experiences suggested that certain music activities may substantially improve reading and related language/communication tasks. While these findings were somewhat informal and did not tell what led to the effects observed, they suggested a need for further systematic study.

Literature Review

Integrating the research in psycholinguistics, auditory-visual integration, Piagetian concept formation, and music leads to insight into the relationship between music and language, particularly as an aid in beginning reading.

Psycholinguistic Research

A major area in psycholinguistic study is metalinguistic awareness. The conscious reflection on and manipulation of language is believed to pose a major problem in beginning reading (Cazden, 1974; Cooper, 1974; Gleitman, Gleitman & Shipley, 1972; Mattingly, 1972; Saving, 1972). Particular difficulty occurs on the level of the phoneme ("individual" letter sound) in its accessibility to the learner. Segmenting the sound stream or word into the individual discrete sounds or phonemes and "blending" them together is particularly difficult in light of Liberman's (1967) work in analyzing the sound stream. He demonstrated with the sound spectrograph that the "b" in "bat" and "bag" have dissimlar spectra

even though our ears generalize them to the same sound. This shows that the phoneme ("individual" letter sound) is not "directly" represented in sound, but is "shingled" onto the other sounds and is identified only in combination with a syllable, where it is affected differently by the vowel with which it is combined. Such a "shingling" effect makes segmentation difficult for the beginning reader. This code relationship of speech to print, rather than a one-to-one (sound to letter) cipher, is actually a concept which needs to be taken into account in beginning reading instruction, where the syllable plays a key role. Additional metalinguistic problems arise with such abstract linguistic concepts as words having "beginning, middle, and ending sounds" (Downing & Oliver, 1974).

The foregoing strongly indicates that beginning reading requires explicit metalinguistic awareness to "break the code." Once this fundamental concept is grasped, the reader moves to increased strategies of chunking and automatization. Reading is then seen as a component of a larger picture of language processes.

These findings suggest that music may aid beginning reading through developing conscious manipulation of sound and visual mapping apart from a complex phoneme-based system. Here, the musical note may function as a syllable to develop a gestalt for conscious segmentation and manipulation of the sound stream.

Auditory-Visual Integration Research

Auditory-visual integration (AVI) is the ability to hear a sequence of sound and relate that sound pattern to a visual representation (Birch, 1964). AVI studies have looked at the correlations of a number of variables: IQ, sex, age, and separate modalities (Kahn & Birch, 1968; Reilly, 1971; Sterritt & Rudnick, 1966). These investigations did not lead to definitive results for three major reasons: diversity of experimental tasks, low ceiling tasks, and unnatural rhythm samples. There is however, a consistent picture of positive correlations between auditory-visual integration and reading, while the detailed nature of the processes responsible remains unclear (Blank & Bridger, 1966, 1967; Blank, Weider & Bridger, 1968; Van de Voort, et al., 1972). Even so, they provide support for a theory of conscious cognitive organization in the transformation of sound to visual representation, the symbolic process of translation. It is here that music may provide a bridge.

Piagetian Research

Underlying each of the foregoing areas discussed (linguistic manipulation and reflection, sound manipulation and segmentation, and coding) is the need for the child's active cognitive processing and creation of strategies of problem solving. Relating this to Piagetian research we find a positive relationship between reading

performance and performance on tasks requiring concrete operational thought. For example, conservers are better readers than nonconservers, deficient readers are deficient conservers and early readers are early conservers (Almy, Chittenden & Miller, 1967; Ayers, Rohr & Ayers, 1974; Brekke, Williams & Harlow, 1973; Elkind, Larson & VanDorminck, 1965). Here music may help by providing a schema for developing such necessary cognitive skills as conserving abstract sound, seriating and ordering sound for decoding and encoding, blending and synthesizing sound.

Music Research

Relatively few studies of the application of music to learning have been reported in contrast to the other areas above. This may be because music is such a multivariant entangled activity, difficult to articulate even within its own domain.

Three areas of music literature have relevance to this study: suggested learning potential of music, research with average children, and research with exceptional children. A general potential to improve self-control, attention and retention, listening skills, and readiness has been attributed to music (Donlan, 1974; MacDonald, 1975). These proposed benefits have not been confirmed nor has the interaction of music with these areas been explored. Studies of average learners associate growth in sequencing skills, spatial ability, academic achievement patterns and reading performance (Hurwitz, Wolff, Bortnick & Kokas, 1975; Gersna, 1975). Research with exceptional children suggests improved memory with mentally retarded, positive personality development, motor development, and reading readiness (Nicholson, 1972; Ponath & Bitcon, 1972; Wingert, 1972). Unfortunately methodological problems make these results difficult to evaluate: lack of control groups, lack of controls for teacher effect, reading program variability, a possible Hawthorne effect with motivating music activities, and meager definitions of the reading programs and music curricula. Furthermore, none explored what processes may underlie the music/language relationship. There is therefore a clear need to better structure the mode of inquiry.

Summary

In summary, evidence from intermodal studies and psycholinguistic research indicates that reading difficulty arises from difficulty in transforming between a stream of sound stimuli in the time domain and a visual code system in the space domain. Although this integration task appears to be directly perceptual in nature, it requires a high level of abstract conceptualization. The problem lies in the symbolic process of translation, a task which requires Piagetian operativity. Beginning reading requires explicit metalinguistic awareness to "break" the language code. The child's purposeful cognitive structuring of the material appears to increase success in reading tasks.

I propose that music may provide a schema for learning and devising cognitive strategies for dealing with sound material. Further, that it does so by systematically teaching abstract sound manipulations and sound-to-visual code mapping, thus providing structure and organization where the musical note acts as a syllable, independent of a phoneme based system. Research from psycholinguistics, auditory-visual integration, and concept formation provide support for this position. This transpires in the motivating and humanizing environment of play.

Methods

The methodology of the present study combines a quasi-experimental design and a descriptive approach using ethnographic techniques. This combined methodology is particularly effective for initial, exploratory investigation. First, it provides a broad spectrum of data and a degree of control over certain related variables. Second, it points the way for more refined future inquiries by raising issues, indicating trends, and identifying specific variables in this music/reading interaction.

Two first grades (N=62, mean age 6.5 years) in a middle class parochial school, with the same basal reading program in each class, participated in the study. Each class was randomly divided into thirds and one-third from each class combined to generate three random groups: music, visual arts, and control.

The music group and the visual art group met three times a week for 30 minute classes, taught by the investigator from December to May (total 22 sessions). The control group did not participate as a treatment group but was given pre and post measures along with qualitative documentation.

The music program was based on the work of Carl Orff, Zoltan Kodaly, and their American counterparts. As an integrated program, it must be studied holistically in the context of the learning process and it does not allow for separation of variables. The curriculum spirally builds music concepts and skills. Children are actively involved in using their own language and expression for creating and improvising speech and rhythm ensembles, playing percussive instruments, singing, playparties, and expressive body movement. These language, rhythm, movement and song experiences are integrated with each other. Children are actually creating and manipulating the elements of music beyond singing topic related songs or appreciating music.

The visual art program provided a variety of media for expression, especially ones not encountered before, encouraging unique and original work (as opposed to traced stencils and fill in the spaces materials). Elements of color, shape, line, space and texture, and their relationships, were explored through discussion and learning experiences. Sensory experiences such as seeing,

touching, and feeling objects were employed for discussion and symbolic representation. Any poems and language used in the music curriculum were also incorporated. The teacher encouraged and facilitated group discussion and sharing ideas for both individual and group projects.

This design provides a degree of control over variables not controlled in previous studies: teacher differences, the reading program, and a possible Hawthorne effect with the music program. By randomizing the two classes into three groups and holding constant the same teacher for the treatment groups minimizes the "teacher effect" that has been reported as a primary variable effecting program-method studies. Both classes used the same basal reader and classroom teachers had equal experience and background. A frequent concern in previous music studies was a potential Hawthorne effect due to the high motivation of students for music programs. It was felt that a visual art program provided a viable program to control for a Hawthorne effect when comparing the three groups. Analysis of variance computed with the Metropolitan Reading Readiness test showed no significant difference in reading among the three groups.

Pre and post measures were carried out for an initial probe in concept formation using the Goodenough-Harris "Draw a Person" test, oral and silent reading using the Botel Reading Milestones test, and metalinguistic awareness using miscue analysis of oral reading samples, reading interviews with the teachers and children (Does anyone read to you? Do you read in school? What is a library? etc.) and spelling analysis. These were quantified for computer based analysis as well as studied qualitatively. Quantitative results were treated in the form of plots, comparison of group means and correlation coefficients.

Descriptive and ethnographic techniques included participant observation with field notes, tape recordings of treatment groups, documentation, monthly work samples with anecdotal records, teacher and child interviews, and observations in a variety of settings. Qualitative findings were treated by retrospective analysis, analyzed for trends, patterns, relationships and developmental changes via outlines, diagrams, rereadings, and reflection.

Results and Educational Implications

Concept Formation

Analysis of the Goodenough-Harris "Draw a Person" test showed a positive correlation between concept development and the music treatment ($r.6$, $p<.01$). The hypothesis of this test is that drawing of a frequently experienced object, such as the human figure, reflects the child's concepts which grow with mental level, experience, and knowledge. This becomes a useful index to the growing complexity of his/her concepts generally (Goodenough, 1926).

These positive results cannot be understood in terms of age, since there was no difference among the mean age levels of the three groups. Examining together the children in the music group and children in the other groups who had the same initial developmental level, these other children did not make the characteristic increase in concept level (or related areas, metalinguistic awareness and reading) that was seen for the children in the music group.

A possible explanation is that this area is basic to and precedes others, so that growth is necessary and demonstrated first here and then other areas are affected. The retrospective analysis of music treatment further suggests that growth in attention and selective attention processing may be fundamental in these growth processes. Although the visual art group showed growth in this area, it did not reach statistical significance as the music group. The author however feels that there is potential here for further study with perhaps a differently structured curriculum or ideally combining the art and music into an integrated arts approach. Although the intent of the present work was to develop a rationale and observe the music-reading relationship.

Reading

A weak positive correlation ($r.23$, $p<.01$) was found between oral reading and the music treatment. Qualitative analysis of the reading tests however demonstrates even greater growth for the music group.

Examining the initial silent reading responses on the Botel Reading Milestones test show important qualitative differences between the music group and other groups. Although all groups may have equally failed to reach the 80% criteria, the paths followed were entirely different routes. This reading test is a close procedure format where children choose a response to complete a sentence. Before the study the music group children's errors were characterized by no or fewer attempts than the other groups, circling any word in the entire sentence rather than one of the choice words, and even circling the whole sentence and sentence number for the answer. In comparison, the children in the other groups, although making errors, followed the correct procedure. They made more total attempts, and appeared to grasp the basic understanding of the reading process. This lack of understanding of the reading process reflected in the music group's silent reading illustrates their initial low metalinguistic awareness discussed below. These differences were even more evident during the children's oral reading.

Analysis of oral reading miscues show that the music group was actually functioning lower than the other groups, although undiscriminated by the numerical results alone and the Metropolitan Reading Readiness test. Children in the music group initially did

not show any decoding strategies or understanding of the reading process, giving "no response" answers or "I don't remember, we never had that." There was no attempt to decode while many said that it was not possible to figure words out. There was no attempt at self-correction, indicating ongoing processing for meaning. At the same time children in the art and control groups, although making a high degree of miscues, did demonstrate decoding strategies and a basic understanding of the reading process in their initial evaluation. Here children came up with the identical score but differed qualitatively in the actual manner in which they arrived at the score, calling for a discriminating interpretation of the numerical results.

Indeed, metalinguistic awareness results verify that the children in the music group were significantly behind the other groups in the basic understandings required to make the "initial leap" into beginning reading. However, even though these children were significantly behind, they improved to equal or in some cases better.

Children in the music group demonstrated in their oral reading, growth in decoding strategies, letter-sound relationships, and awareness for comprehending reading as communication, carrying meaning, compared with the other groups. For example, oral reading was characterized as using greater expression and fluency than the other children. There were even frequent "rereadings" to get the "right sound effect" for the expressive feeling in the passage. Growth was demonstrated by self-corrections and processing of the text with meaning. Retrospective analysis of the music treatment suggests that we are observing the beginning of a growth curve and that with more sessions or extended treatment the music group may have surpassed the other groups and thus reached a higher level of significance. There is an additional complicating factor of maintaining control over extra reading instruction taught to the control group while the music group was in session, which could influence significant gain for the treatment group.

Metalinguistic Awareness

Results show the greatest amount of growth in metalinguistic awareness with the music group. Performance was rated on a scale: 0 - no demonstration, 1 - transitional level, 2 - demonstrated understanding by assessment of oral miscues, initial phoneme manipulation, creating and manipulating word families (at, cat, pat, cap, tap, tad, etc.), and reading interviews.

Both qualitative and quantitative analysis showed that although the music group was operating at a lower level ($r.4$, $p<.01$) at the beginning of the study, they improved to equal or better. The children in the music group evidenced increased sound manipulation and letter-sound awareness beyond the other groups. For example, initially these children could not change initial

sounds in word families or give rhyming words. They demonstrated in work samples collected and reading interviews little understanding of the relationship of sound to print, or reading as communication. They tended to confuse books, records, television programs, stories, and conversation all into one category. The school library was described as a room you "go to on Thursday" or a room "with a fireplace."

The most evocative comparison of the three groups is the change in total point score (Table 1), the sum for each group of metalinguistic awareness scale points scored by each student.

Table 1

Comparison of Pre and Post Group Metalinguistic Scores

	Post score		Pre score		Change
Music group	39	-	8	=	31
Visual art group	33	-	18	=	15
Control group	37	-	27	=	10

Classroom observations, oral and written composing, monthly worksamples, and analysis or oral reading samples demonstrated an increase in phonic skills and sound awareness with the music group. Unusual and closely phonic related spellings were seen with children in the music group. Although divergent at times from traditional spelling patterns, exact sounds were accurately discriminated and represented. One example is distinguishing between the final sounds /t/ and /d/ for "ed" ending, and another is including all the sounds heard in long vowels such as writing "ae" for long "a" words (baet for bait) at an earlier stage in spelling development. In addition to this increased letter-sound awareness and manipulation, teachers reported linguistic growth in decoding during oral reading and increased oral fluency.

Effect of Music

Retrospective analysis of field notes and audio recordings indicates developmental areas and trends during the music treatment period of the group and individuals. Particular patterns of development are increased attention, improved sound reproduction

and manipulation, increased ability to coordinate the modalities of sound, visual and kinesthetic response, growth in self-concept, and increased group cooperation. During the treatment period, continuous growth was observed in effort and ability to focus on the general task and on the particular items of manipulation, along with increasing levels of accuracy. Thus, a developmental pattern operating in the music setting emerged as described in Figure 1.

focus---> selectively attend/discriminate ---> manipulate/coordinate ---> schemata ---> perform

Figure 1. Developmental pattern observed in music context.

To focus, the subjects must shut out extraneous activity and bring attention to bear on the task at hand. Thus achieving focus, they must narrow in on the task and selectively attend to a specific part or area within the overall task and manipulate these areas.

The music activities provided three distinct dimensions of input, allowing the individual entry into the system at any of the points most easily grasped: sound input, visual input, body input. Thus for three individuals we may see the following paths to the same goal in Figure 2, where V, A, and K mean visual, aural, and kinesthetic input respectively.

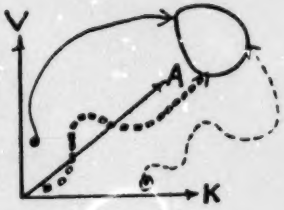
In the music curriculum, these three dimensions are concretely coupled and sequenced in their manipulation, proceeding at increasing levels of abstraction. Since all three modes are introduced simultaneously at the concrete level, then move to increasing levels of abstraction, the individual can enter at the most accessible point and develop individual strategies for coordinating schemata.

In light of these findings and those of psycholinguistic research where the segmentation of the sound stream is a particularly difficult area for the beginning reader, music appears to provide a unique opportunity to deal with this complex area of sound manipulations in a holistic context.

Conclusions

These results suggest that music activities may facilitate reading/language arts learning in the early reading acquisition stages. Indicators were growth in concept formation, metalinguistic awareness and reading improvement. The roles of focus and attention, and developing strategies of coordinating schemata appear to be fundamental in the process. Such a program may provide the raw material for teaching basic concepts about sound manipulation in beginning reading. This transpires in the affirm-

ing and humanizing learning environment of the child's own response through language play, rhythm, movement and song.



V - Visual

A - Aural

K - Kinesthetic

Figure 2. Schematic of visual, aural and kinesthetic dimensions of music program for individual learning paths.

References

Almy, M., Chittenden, E., & Miller, P. Young children's thinking. New York: Teacher's College Press, 1967.

Ayers, J. B., Rohr, M. E., & Ayers, M. N. Perceptual-motor skills, ability to conserve and school readiness. Perceptual and Motor Skills, 1974, 38, 491-494.

Birch, H., & Belmont, L. Auditory-visual integration in normal and retarded readers. Child Development, 1967, 38, 828-833.

Blank, M., & Bridger, W. Deficiencies in verbal labeling in retarded readers. American Journal of Orthopsychology, 1966, 36, 840-847.

Blank, M., & Bridger, W. Perceptual abilities and conceptual deficiencies in retarded readers. In J. Aubin (Ed.),

Psychopathology of intelligence. Trans American Psychopathology. Ass. New York: Grune and Stratton, 1967.

Blank, M., Weider, S., & Bridger, W. H. Verbal deficiencies in abstract thinking in early reading retardation. American Journal of Orthopsychology, 1968, 38, 823-834.

Brekke, B. W., Williams, J. D., & Harlow, S. D. Conservation and reading readiness. Journal of Genetic Psychology, 1973, 123, 133-138.

Cazden, D. Play and metalinguistic awareness: One dimension of language experience. Urban Review, 1974, 7, 28-39.

Cooper, S. F. How is language conveyed by speech? In J. F. Kavanaugh & I. G. Mattingly (Eds.), Language by ear and by eye. Cambridge, MA: MIT Press, 1972.

Donlan, D. Music and the language arts curriculum. English Journal, 1974, 63, 86-88.

Downing, J., & Oliver, P. The child's concept of a word. Reading Research Quarterly, 1973-4, 9, 568-82.

Elkind, D., Larson, M., & Van Dornick, W. Perceptual decentration learning and performance in slow and average readers. Journal of Educational Psychology, 1965, 56, 50-60.

Gersna, C. J. An investigation into improving the language arts skills through fine arts experiences. Unpublished doctoral dissertation, University of Pittsburgh, 1975.

Gleitman, L., [illegible]n. H., & Shipley, E. The emergence of the child as grammarian. Cognition, 1972, 1, 137-164.

Hurwitz, I., Wolff, P., Bortnick, & Kokas, K. Nonmusical effects of the Kodaly music curriculum in primary grade children. Journal of Learning Disabilities, March 1975, 8, 167-174.

Kahn, D., & Birch, H. G. Development of auditory-visual integration and reading achievement. Perceptual and Motor Skills, 1968, 27, 459-468.

Kelley, L. A combined experimental and descriptive study of the effect of music on reading and language. Unpublished doctoral dissertation, University of Pennsylvania, 1981.

Kelley, L. Music effects on language in the first grade. Paper presented at the Keystone State Reading Conference, Oct. 1982, in press.

Kelley, L., & Botel, M. Teaching decoding/comprehension through the arts. Unpublished manuscript.

Liberman, A. M., Cooper, F. S., Schankweiler, D. P. & Studdert-Kennedy, M. Perception of the speech code. Psychological Review. 1967, 74, 431-457.

MacDonald, D. Music and reading readiness. Language Arts, Sept. 1975, 52, 872-876.

Mattingly, I. G. Reading, the linguistic process and linguistic awareness. In J. F. Kavanaugh & I. G. Mattingly (Eds.), Language by ear and eye. Cambridge, MA: MIT Press, 1972.

Nicholson, D. L. Music as an aid to learning. Unpublished doctoral dissertation, New York University, 1972.

Ponath, L. & Bitcon, C. A. Behavioral analysis of Orff-Schulwerk. Journal of Music Therapy, 1972, 9, 56-63.

Reilly, D. H. Auditory-visual integration, sex, and reading achievement. Journal of Educational Psychology, 1971, 62, 482-486.

Savin, H. B. What the child knows about speech when he starts to learn to read. In J. F. Kavanaugh and I. G. Mattingly (Eds.), Language by eye and by ear. Cambridge, MA: MIT Press, 1972.

Sterritt, G. M. Auditory and visual rhythm perception in relation to reading ability in fourth grade boys. Perceptual and Motor Skills, 1966, , 22, 859-864.

VandeVoort, L., Senf, G. M., & Benton, A. Development of audio-visual integration in normal and retarded readers. Child Development, 1972, 43, 1260-1272.

Wingert, L. M. Effects of a music enrichment program in the education of the mentally retarded. Journal of Music Therapy, 1972, 9, 13-22.

A Response to Kelley's Paper

Marjorie Wilson
State University of New York at New Paltz

One of the most intriguing questions that educator/researchers can ask is "does the acquisition of skill in one symbol system influence performance in another symbol system?" This is the very question that Kelley addresses in her exploration of possible interactive consequences of reading, music, and art instruction. And her study illustrates the difficulty, perhaps even the impossibility, of presently answering this question.

Our first level of expectation for such research would be to show that there is evidence of a correlation between one symbolic activity and another. Kelley found that there were "correlations" and "weak positive correlations" between the music treatment and performance on the draw-a-man test, and between the music treatment and oral reading performance. How are we to view these findings? Belief is that in the educational realm we must distinguish between statistical significance and educational significance. If we were to find through repeated replications that there were marked (perhaps on the order of 10%, 20%, or even greater) differences between treatment groups then we might conclude first, that the correlations did indeed have educational significance, and second, that we ought to attempt a fuller theoretical understanding of the structural relations that might exist among various symbol systems. The findings from Kelley's study are probably not educationally significant. And a note of caution must be raised even where statistical significances were found. Scores on the draw-a-man test, for example, are highly effected by a variety of factors including suggestion, instruction, and graphic models. For example, we have found that with a few verbal or graphic suggestions it is possible to raise a child's human figure drawing performance to the extent that it would increase draw-a-man scores over thirty points. Why should we assume that it was the music treatment rather than dozens of other possible intervening variables including the biases of the teacher/researcher that may actually have led to increases in drawing scores?

As an art educator I must also register a methodological-educational protest. The description of the music treatment indicates that music was taught with an understanding of the structure of the "discipline of music." (Although perhaps the theories of Orff and Kolday may not be compatible.) The art instruction, on the other hand we are told, emphasized "seeing, touching, and feeling" and "poems and language from the music curriculum." And yet when children's spontaneous drawing activity is observed (Wilson and Wilson, 1982) it is possible to watch them dealing concretely with sequence, cause and effect, structure, range of inclusion, domain of application, action and other meaning dimen-

sions (Kreitler and Kreitler, 1976) that would seem to have important relationships to reading skills. It may be that the art treatment group should be considered merely, as a second non-treatment or traditional control group.

We ought not to abandon our search for relationships among symbol systems. Surely one system "feeds" another. A more fruitful approach, however, than the one followed by Kelley, might be the development of art/music/reading programs that were designed to help children to identify the relationships that exist among the symbol systems and then to practice transferring the cognitive skills (that may not be quite readily accomplished by children when working in one symbol system) to another where they are more difficult to achieve. Kelley's study might be viewed as a pilot effort that reveals some promising educational approaches, but also the terribly difficult theoretical, instructional, methodological, and measurement problems that will plague this type of research.

References

Kreitler, H. and Kreitler, S. 1976, Cognitive orientation and behavior. New York: Springer.

Wilson, B. and Wilson, M. Strategies for a multi-dimensional cross-cultural analysis of children's graphic narratives. The proceeding of the INSEA pre-conference on research into ideology, learning, evaluation and arts education. (National Institute for Curriculum Development, The Netherlands) P. Godefrooij, editor, 1982, pp. 217-232.

Structural Information Retention in Visual Art Processing

Judith Smith Koroscik
The Ohio State University

Mention of the names Leonardo da Vinci, Vincent van Gogh, Pablo Picasso, and Salvador Dali evoke memories of dissimilar works of art for persons with even the most casual interest in Western art history. It might be assumed that the distinguishing characteristics among these different memories consist, at least in part, of specific references to the visual features of each artist's work. The specificity of such stored visual information is in question, however, given the results of recent picture recognition studies that indicate the long term retention of pictorial stimuli is not a function of memory for structural details (Mandler & Parker, 1976; Mandler & Ritchey, 1977; Nickerson & Adams, 1979; Pezdek & Chen, 1982; Rock, Halper, & Clayton, 1972).

These findings are interesting in light of other empirical evidence that indicates recognition performance for pictures is superior to that of words (D'Agostino, O'Neill, & Paivio, 1977; Durso & Johnson, 1979; Nelson, Metzler, & Reed, 1974; Shepard, 1967). Presumably, the details displayed in pictures are "worth a thousand words," yet recognition superiority for pictures over corresponding verbal descriptions has been attributed to qualitative differences in the distinctiveness of sensory codes, not to the amount of information they make available nor the number of codes they activate during processing (Nelson, Reed, & McEvoy, 1977).

This explanation of pictorial superiority is premised on the assumption that the processing of a picture's sensory features precedes semantic analysis and that such encoding need not be completed prior to the processing of phonemic information. In contrast to this ordering is that which occurs in the encoding of verbal stimuli wherein semantic analysis is not required prior to naming. "The consistent finding that pictures are easier to remember than words is attributed to differences between pictures and words in the effectiveness of their redintegrated visual codes, not to differences associated with processing at the meaning level" (Nelson, Reed, & McEvoy, p. 496). Durable memories are thus more readily established for pictures than words as a function of visual features in pictures that provide easier access to semantic information.

If the mneumonic superiority of pictures is linked to the effectiveness by which their visual features ensure that semantic information will be processed, manipulation of semantic access with pictorial stimuli varied in levels of abstraction ought to affect recognition performance for structural information. This would be

the case if abstraction level is regarded as the concreteness by which meaning is represented in pictorial form rather than the degree to which that form is embellished with structural details. Koroscik and Blinn (in press) tested this hypothesis for visual art retention with adult subjects who viewed artworks by varying abstraction levels while performing verbal and nonverbal tasks that directed viewing responses to specified areas of the artworks or to the works in their entirety. Memory tests asked subjects to recognize whether pictorial test items matched the artwork they just viewed and to recall the exact location of each recognized item. Correct test items were one-sixteenth segments randomly drawn from four different quadrants of each work of art. Incorrect items were matched to the correct segments on the basis of their structural similarity. Verbal tests with reference to the artworks' content paralleled the pictorial recognition and recall tests.

Results of the experiment suggested viewers accessed semantic information while responding to task directives that did not demand it. This was indicated by low scores on pictorial tests for highly abstract works of art. Although differences were observed between pictorial and verbal test performances, lower verbal scores were attributed to the incorrect responses subjects often made when processing semantic information from artworks exhibiting high levels of abstraction. Since verbal labels were not present for encoding, word item recognition performance was based on the translation of semantic information, not on word recognition per se. It seemed plausible to assume that subjects retained this incorrect information with superior accuracy and used it effectively in conjunction with structural information on the pictorial tests where its incorrectness served no disadvantage. This effect was apparently the same for pictorial recall where subjects had greatest difficult specifying the location of pictorial segments from highly abstract works of art. Although locational information is a structural dimension of pictures, subjects' memories for it were largely influenced by the availability of semantic information.

Such findings provoke question of the extent to which structural information from pictures is retained apart from semantic information. The claim that elaborate memories can be established for a picture's structural features as well as for its semantic characteristics (Nelson, Reed, & McEvoy, 1977) is difficult to support when retention tests for complex pictorial stimuli do not preclude semantic intervention in test performance. This problem may have few, if any, absolute resolutions, however, the control of semantic mediation effects might be approached through the use of stimuli that have identical names and equivalent meanings but which vary somewhat in structural attributes. An obvious source for such stimuli is visual art where copies are traditionally painted after the masters. Copies by forgers, by students, and by the artists themselves vary in their resemblance to original artworks but often

maintain semantic equivalence and are typically identified by the same title.

Da Vinci's Mona Lisa is a painting that meets these criteria. Reproductions of it and eight copies painted after the original were presented to nonart college undergraduates on two different recognition tests in the present study. Previous investigations of art viewing processes (e.g., Bengston, Schoeller, & Cohen, 1978; Gardner, 1973; Rush, 1979; Rush & Sabers, 1981) have studied responses to works of art with identification tests in which artworks are viewed and responded to singly or with discrimination tests in which a target artwork is to be distinguished from a collection of other simultaneously presented works. Such testing procedures have often been used without consideration of memorial differences inherent in the testing procedures themselves. Assessment of these differences seems essential in developing precise indices of visual art retention. The present study was thus designed to compare performance on two recognition tests while examining the accuracy of subjects' long term retention of structural information displayed in a familiar painting for which "real world" distractors repeatedly appear (e.g., in magazine ads, as Mona Lisa T-shirts, on billboards, in television commercials, and in other advertising mediums).

Method

Subjects

Seventeen female undergraduate elementary education majors enrolled in an art education course at The Ohio State University volunteered to participate in the experiment.

Materials

Slides were prepared of Da Vinci's Mona Lisa and eight copies painted after the original by sixteenth through twentieth century artists. The copies closely resembled the original painting but varied somewhat in color, proportion, and background detail. A total of 20 slides were prepared, two of each copy and four of the original Mona Lisa. The slides were grouped in two sets, one to be projected correctly and the other as right side up but reserved images. An extra slide of the original Mona Lisa was included in each set to measure the consistency of subjects' responses in the identification-recognition test. Nine full-color printed reproductions of the original Mona Lisa and the copies (same as those reproduced as slides) averaging approximately 5 X 7 inches were prepared for the discrimination-recognition test.

The Mona Lisa was selected as a test stimulus on the basis of its general familiarity to untrained viewers of art (i.e., it was presumed all subjects had viewed a reproduction of the original painting at least once prior to the experiment), and because of the

availability of numerous copies painted after the original. The fact that some copies more closely resembled structural attributes of the original than other copies was an additional factor in determining its suitability as testing stimuli.

Procedure

Identification-recognition test. Subjects were tested in pairs while seated at a table positioned approximately 12 feet in front of a slide projection screen. Respondents were first asked to approximate when they last viewed a reproduction of the original Mona Lisa painted by Leonardo da Vinci. They were then shown one of the 20 slides prepared for the test. All slides were independently randomized for each testing session where they were uniformly projected to the size of approximately 30 X 40 inches in a light controlled environment. Subjects were instructed to consider each slide precisely as shown and not to assume a slide was incorrectly projected. The respondents were asked to view each slide for 15 seconds and then indicate whether it was a reproduction of the original Mona Lisa by Da Vinci or a copy that resembled the original. Subjects were also asked to briefly specify in writing how the slide deviated from the original when it was judged to be a copy. Subjects responded to one slide at a time and were not allowed to review slides previously shown nor were they permitted to change earlier responses.

Discrimination-recognition test. Immediately after responding to all 20 slides in the identification test subjects were individually asked to examine a set of full-color printed reproductions that included the original Mona Lisa and the eight copies previously shown as slides. The prints were simultaneously presented to subjects in independently randomized arrangements. Respondents were instructed to take as much time as they desired to study the prints and then indicate which one was a reproduction of the original Mona Lisa. The respondents were next instructed to select a second and third print from the set of nine that best represented their memory of the original painting.

Results and Discussion

Test responses were treated as dichotomous data by scoring items as correct only when subjects were consistent in identifying the original Mona Lisa and its reversed image in the identification test, and when they selected the original painting as their first choice on the discrimination test. Analysis of the data indicated: Discrimination > Identification, $F\ (1, 16) = 5.67$ at the $p < .05$ level. This suggests recognition performance benefited from the simultaneous presentation of stimuli in the discrimination process where subjects could continuously compare one printed reproduction with another and where each print could be continuously compared with internally stored representations of the original Mona Lisa.

Only three of the 17 subjects tested could accurately identify the original Mona Lisa on the slide identification test. Verbal statements given by subjects on the test suggested recognition judgments were based on what was regarded as "not quite right" about a test stimulus. Subjects most often referred to colors that appeared "too greenish" or "too yellowish." Comments that a test stimulus was "not detailed enough," that "the hands are pulled in too close," or that there was "too much of a smile," confirmed the distinctiveness of subjects' encodings of structural information. Of additional interest were references made by several subjects to slides previously shown on the identification test. For example, stimulus number five was correctly identified as the reverse of the first stimulus shown; stimulus 16 was correctly identified as the reverse of stimulus four; and stimulus 17 was correctly matched to stimulus six. The precision of these memories did not benefit recognition of the target stimulus on the slide test but does suggest subjects attempted to store comparative information that might aid them in making correct identification judgments. This comparative information did not equal that provided by the simultaneous presentation of stimuli on the discrimination test where the accuracy of subjects' recognition of the original Mona Lisa far exceeded that expected by chance alone, $(1) = 7.12$, $p < .01$. It is, of course, possible that discrimination was higher than identification performance as a function of test order effects that positively biased discrimination scores. This seems unlikely; however, since feedback in the correctness of recognition responses was not a part of the testing procedures. It seems more likely that the identification test provoked an increase in recognition uncertainty thus lowering discrimination performance instead of enhancing it.

The findings are consistent with results of previous investigations by Koroscik (1982) and Koroscik and Blinn (in press) that found subjects to be highly accurate in recognizing structural information from artworks varied in levels of abstraction. Unlike the earlier investigations, however, the present study measured retention of structural information on long term bases as only three of the 17 subjects tested in the study reported having viewed a reproduction of the original Mona Lisa within the last several months. All others approximated the last viewing time as one year to 15 years ago, with the exception of one subject who claimed never having viewed a reproduction of the Mona Lisa. The latter individual adjusted this response after testing, but remained uncertain of just when she previously viewed the painting. Interestingly, despite this subject's inability to recall having seen the Mona Lisa when first asked, it was among her selections on the identification test and was successfully recognized on the discrimination test.

Further analyses of the data showed no significant differences in memory performance between subjects who stated having viewed the Mona Lisa many times vs. a few times prior to testing. However,

the recency of subjects' viewing of the painting was found to be a significant factor in their performance on the two recognition tests: Recency X Recognition Type, F (2, 14), = 4.81, $p < .05$. Those subjects who reported viewing a reproduction of the Mona Lisa within the last several months (High Recency, x = .7 yrs.) recognized the painting with the same level of accuracy on the identification test as on the discrimination test. Such performance differed for persons who indicated not having seen a reproduction of the painting for several years (Medium Recency, x = 3.3 yrs.; Low Recency, x = 9.6 yrs.). The latter two groups of subjects performanced significantly lower on the identification test than High Recency subjects, $p < .05$, but equalled High Recency recognition performance on the discrimination test where their scores were significantly higher than those on the slide identification test, $p < .01$. The introspective nature of subjects' recency reports bring to question their reliability; however, these significant findings suggest subjects were either precise in their estimates or consistent in adjusting their recency reports to the degree of elaboration that characterized their stored representations of the painting.

An analysis of combined identification and discrimination responses further delineated the accuracy of subjects' recognition performance. This was accomplished by tallying selection frequencies for each of the nine artworks shown as slides and prints in the study. Selection frequencies were then analyzed in relation to stimulus groupings made by three art experts who had advanced training in the visual arts. The judges grouped the works of art in terms of their structural similarity to the original Mona Lisa. Stimulus Group 1 consisted of the original and the two copies that most closely resembled the original; Group 2 consisted of copies judged as resembling the original to a lesser degree; and Group 3 included copies ranked lowest in their resemblance to the original. The three art judges independently made identical groupings of the works of art. Results of the analysis showed means ranked as follows: Group 1 > Group 2 = Group 3, $p < .01$, indicating again that subjects were extremely accurate in judging whether they were or were not viewing a reproduction of the original Mona Lisa. Apparently, when subjects made incorrect judgments and identified copies as the original, the copies selected were those most closely resembling the original as judged by experts in the visual arts.

Conclusion

The present investigation examined the art viewing process by studying the accuracy of nonart college students' long term retention of structural information. Subjects demonstrated high levels of accuracy in their overall performance, however, recognition scores were found to vary with the demands imposed by two different recognition tests. These findings support the claim that elaborate memories can be established for the structural features displayed in pictures (Nelson, Reed, & McEvoy, 1977) but further indicate

structural information may not be remembered apart from semantic encodings unless comparative simulus cues are available to aid recognition. Such results suggest caution be used when generating experimental measures of art learning processes and when generalizing results from them. Memorial operations often play a key role in test response behaviors, are fundamental to all learning, and ought not be ignored when empirical measures of learning are designed.

References

Bengston, J. K., Schoeller, J., & Cohen, S. J. On conceptualizing an artistic style: How critical are examples? Studies in Art Education, 1978, 20(1), 49-55.

D'Agostino, P. R., O'Neill, B. J., & Paivio, A. Memory for pictures and words as a function of levels of processing: Depth or dual coding? Memory and Cognition, 1977, 5(2), 252-256.

Durso, F. T., & Johnson, M. K. Facilitation in naming and categorizing repeated pictures and words. Journal of Experimental Psychology: Human Learning and Memory, 1979, 5(5), 449-459.

Gardner, H. The contribution of color and texture to the detection of painting styles. Studies in Art Education, 1973-74, 15(3), 57-62.

Koroscik, J. S. The effects of prior knowledge, presentation time, and task demands on visual art processing. Studies in Art Education, 1982, 23(3), 13-22.

Koroscik. J. S., & Blinn, L. M. The effect of verbalization on visual art processing and retention. Studies in Art Education, in press.

Mandler, J. M., & Parker, R. E. Memory for descriptive and spatial information in complex pictures. Journal of Experimental Psychology: Human Learning and Memory, 1976, 2(1), 38-48.

Mandler, J. M., & Ritchey, G. H. Long term memory for pictures. Journal of Experimental Psychology: Human Learning and Memory, 1977, 3(4), 386-396.

Nelson, T. O., Metzler, J., & Reed, D. A. Role of details in the long-term recognition of pictures and verbal descriptions. Journal of Experimental Psychology, 1974, 102(1), 184-186.

Nelson, D. L., Reed, V. S., & McEvoy, C. L. Learning to order pictures and words: A model of sensory and semantic encoding. Journal of Experimental Psychology: Human Learning and Memory, 1977, 3(5), 485-497.

Nickerson, R. S., & Adams, M. J. Long-term memory for a common object. Cognitive Psychology, 1979, 11, 287-307.

Pezdek, K., & Chen, H. Developmental differences in the role of detail in picture recognition memory. Journal of Child Psychology, 1982, 33, 207-215.

Rock, I., Halper, F., & Clayton, T. The perception and recognition of complex figures. Cognitive Psychology, 1972, 3, 655-673.

Rush, J. C. Acquiring a concept of painting style. Studies in Art Education, 1979, 20(3), 43-51.

Rush, J. C., & Sabers, D. L. The perception of artistic style. Studies in Art Education, 1981, 23(1), 24-32.

Shepard, R. N. Recognition memory for words, sentences, and pictures. Journal of Verbal Learning and Verbal Behavior, 1967, 6, 156-163.

A Response to Koroscik's Paper

Marjorie Wilson
State University of New York at New Paltz

Neither would I question, nor do I think the researchers whom Koroscik faults for precluding the role of memory in studies dealing with responses to works of art would question the major assumption that guided this experiment, i.e., that identification and discrimination tasks are dependent upon...retention of structural information. Nevertheless, Koroscik proceeds to predicate her entire design upon this argument, relentlessly pursuing measures of memory to conclude that "memorial operations often play a key role in test response behaviors, are fundamental to all learning, and ought not be ignored when empirical measures of learning are designed." But perhaps, like the ubiquitous nature/nurture question, Koroscik will also concede that there is no single answer-that memory alone cannot account for retention of structural information-and a more likely conclusion would be one that not only acknowledges the role of memory, but would include other components upon which such test response behaviors to identification and discrimination tasks are based as well.

Set

That all of the subjects-undergraduates at the Ohio State University-were presumed to have seen a reproduction of Leonardo's Mona Lisa at one time or another is hardly an erroneous assumption. The National Assessment data show that, when presented with four female portraits painted during approximately the same period-a task not unlike Koroscik's-the majority of 9-year-olds across the United States could identify the Mona Lisa as the most famous painting. Let us start from this point. We are told that "the respondents were asked to approximate when they had last viewed a reproduction of the original Mona Lisa painted by Leonardo da Vinci." Although this was done in order to obtain some base data, the probable consequence of asking the question prior to, instead of after, the task would be to immediately establish a "set," i.e., this is a famous painting by a famous artist. Given such a set would my own response to the tasks at hand be based on a "memory" of a once-seen reproduction of Leonardo's famous painting or upon judgments of the aesthetic quality of that famous painting? In other words, can we so compartmentalize thought processes, and separate memory from judgments of: which is the better work; which looked most as though it might have been painted by an artist of Leonardo's stature; or which might be worthy of being ensconced in the Louvre?

The Reproduction

Regarding the reproductions used in the two tasks described in Koroscik's paper, I keep wanting to say, "Will the real Mona Lisa please stand up," and my concern is that Mona was not in the study at all. The two tasks described involved what Stephen Pepper, in The Basis of Criticism in The Arts, calls "approximate multiple continuants" and looking at and comparing approximate multiple continuants of approximate Mona Lisas.

The first task used slides projected to a size of thirty to forty inches-Mona herself is 30 1/4 X 21 inches-and because the light was controlled, and the image isolated (for ideal viewing conditions) we can assume that the subjects saw projected a much more luminous and intensely colored Mona than her protected "original" in the Louvre, i.e., an over approximation. The 5 by 7 "full color printed reproductions" were, on the other hand, by virtue of size alone, under approximations. And we are also led to speculate upon the nature of the great variety and quality of approximate multiple continuants that might have been viewed by the individual subjects prior to the study.

My point is that there is no necessary correspondence between the approximate multiple continuants: the overapproximate slide projection, the underapproximate printed reproduction, and the over or underapproximation of which each subject had an approximate memory. Just as it is difficult, if not impossible, to separate those things that can be attributed to nature from those that may be the result of nurture, so that in order to see the individual entirely, an interactive theory needs to be employed, so it is difficult to separate what might be attributed to memory from factors such as set, experience, and the role played by the reproduction. Perhaps the next task would be to develop a theory based on the interaction of memory with those other factors that affect such test response behaviors as those described by Koroscik, upon which empirical measures of learning may be more adequately designed.

An Analysis of Experimental Measures of Learning in Studies of Visual Art Viewing Processes

Barbara Boyer and Judith Koroscik
The Ohio State University

The extent to which an empirical study achieves insight into art learning processes (or any phenomena for that matter) is primarily a function of the experimental measures used in the investigation. Measurements yield data for analysis and interpretation, and provide evidence from which conlucions are made. Theoretical and practical application of experimental findings are relevant only when the study succeeds in measuring what the researcher intended. Relevancy further requires that data derived from such measures be analyzed and interpreted without violation of assumptions inherent in the statistical and experimental methods used by the investigator. Thus, the purpose of this study was to examine the experimental measures used in recent (1970-1982) empirical investigations of art learning that employed two-dimensional visual art (or their reproductions) as presentation and/or testing stimuli. The studies were analyzed specifically in terms of (1) what they measured, (2) what they intended to measure, (3) how they proceeded to measure it, (4) how the data from such measures were analyzed, and (5) what conclusions were made on the bases of such measurements.

Method

Various search procedures were used to identify published reports of recent (1970-1982) experimental studies of art learning that examined art viewing processes with visual art stimuli. These procedures included (1) the use of three major studies by art educators related to a review of art learning literature (i.e., Davis, 1974; Hardiman, & Zernich, 1975; McWhinnie, 1971); (2) hand searching of abstracts, indexes, and major publications such as Studies in Art Education, The Journal of Aesthetic Education, and The Journal of Aesthetics and Art Criticism; (3) the use of three computer searches incorporating selected descriptors obtained from procedures in (1) and (2); and (4) readings and classification of the screened literature identified from the above.

Only those investigations that examined the processing and retention of two-dimensional visual art information were selected for consideration in this study. This included experiments of perception, concept acquisition, discrimination, memory, and other cognitive processes. The focus for this paper was not on art preferences nor attitudes. A total of 24 investigations were identified as meeting such criteria after extensive reviews of the literature.

Results and Discussion

The act of viewing visual art is a complicated enterprise, and as such it is difficult to investigate. Researchers interested in measuring learning in studies of art viewing processes have had to wrestle with demands imposed by stimuli that vary not only in structural complexity but in the complexity of the semantic information they make available to viewers as well. Historically, this has been accomplished in essentially three ways: by manipulating the art stimulus, by controlling it, or by avoiding art stimuli altogether. The latter method commonly relied upon geometrical shapes, abstract patterns, or simple line representations of objects as presentation and testing stimuli in lieu of artworks (or their reproductions) in efforts to bypass problems posed by the complexities noted above (Gardner, & Gardner, 1970). The limitations of such testing practices were evident in findings that could not be appropriately generalized to the art viewing experience. More recent studies, however, reflect sensitivity to such limitations with arguments that art response behavior cannot be measured when stimuli other than actual works of art or their reproductions are used in testing (Boyer, 1980). Berlyne (1975) found that examining factors such as complexity, novelty, and ambiguity in experiments using works of art created different methodological problems from those using abstract patterns or geometric shapes. When Berlyne used paintings from non-Western cultures in his experiment there were different clusterings around factors which suggested that subjects were using different labeling systems as well as specific cultural cues when looking at works of art.

The experiments examined in this study employed artworks as either controlled or manipulated stimuli. Control was often applied by the experimenter through the selection of artworks similar in terms of the artist who produced them, the time of their production, their stylistic characteristics, dominant forms, subject matter, or abstraction level. Bengston, Schoeller, & Cohen (1978) attempted to determine if there were an optimal number of examples that would aid subjects in sorting reproductions of artworks by style. The researchers concluded that the number of examples was not significant for concept acquisition, but rather the nature of the conceptual learning that needed to be accomplished by the instructional device. Most important, Bengston et al., noted that under certain conditions (group testing in two of their experiments with no feedback or practice) that discrimination performance in itself, could produce misleading conclusions.

Artworks were less frequently manipulated as stimuli in the investigations. Whenever manipulation was applied by the experimenter, works were altered in brightness, textual qualities, or in the systematic removal or addition of pictoral elements. Gardner (1973-74), for example, had been interested in the variables affecting the perception of styles in art. In a similarity of style testing, Gardner concentrated on the dimension of color and

texture and how the addition or deletion of either of these would affect high school subjects' ability to judge similarity between reproductions of paintings. Texture was reduced with the use of a wire mesh screen laid over the reproduction and then photographed. The reduction in color or texture in the reproduction caused severe deterioration in the scores. Gardner also observed that there was no significant difference between the scores of high school subjects who had art classes and those subjects who did not have art classes.

There were experimenters who worked directly with the effect of instruction to increase aesthetic peception. Hysell (1973) tested Ausebel's advanced organizer that arranged concepts of a discipline in a hierarchial order. A pretest-posttest design was used. Testing was done with the Eisner Art Information Inventory and the Aesthetic Perception Index. Results after treatment indicated that learning with the advanced organizer tended to increase perceptual skills in aesthetics. The control group had traditional studio experiences and Hysell noted that there was "extremely little growth in aesthetic/perception skills" (p. 18). Goude (1972) and O'Hare (1976) found that art students differed with nonart students in judgment responses as well as preference to painting. Wilson (1972) wanted to determine if high school programs influenced students' judgment about art work. He found that there was significantly increased use of art terms and dialogue made by art students with three years of high school art versus those students with zero years of art. However, he also noted the lack of quality in the art students responses. The studies were limited in the area of the effect of educational background on dependent variables of aesthetic perception, retention or cognition. Description was lacking as to the curriculum or type of public schools or college art program that subjects had been enrolled in. As noted in an earlier study (Boyer, 1980), the term "art student" provided minimal clues as to what particular type of art education background influenced the learning being measured--if at all.

Both verbal and nonverbal measures were used by researchers to assess art learning in the 24 studies reviewed. Nonverbal measures were predominant and remarkably similar. They involved subjects in the performance of essentially two cognitive tasks: (1) to discriminate one or more artworks from other simultaneously presented works on the basis of stylistic or visual characteristics, and (2) to relate one or more works of art to others previously viewed on terms created by the respondent. Grouping and rating methods were commonly used as response procedures in these tasks. Bengston, Schoeller and Cohen (1978) used sorting tasks to measure college students' ability to differentiate between color prints of surrealistic paintings and those that were not of that style. Gardner (1973-74) employed grouping or matching tasks. Reproductions of a particular artist were presented to subjects with a test array including a reproduction of that artist's work as well as three

other reproductions by three different artists. The artist whose work matched the first presentation was to be selected. In 1973 Gardner and Gardner found younger subjects (five and seven years old) sorting by subject matter. As early as eleven years old, the subjects were aware that paintings could be grouped in various ways. The results in this experiment suggested that "verbal and cultural concepts exert a stronger influence than purely perceptual features on young children's classificatory behavior" (p. 108). Instruction was a variable in the experiment--but it was not clear what cultural differences existed or in what sense culture played more of a role than perception in influencing behavior--or how cultural concepts were differentiated from perceptual features.

Verbal measures were often used in association with nonverbal testing when subjects were asked to justify or explain their nonverbal responses. Interviews and questionnaires were used to collect data on art viewing responses and to gather personal background information on participants. Stahl and Webster (1978) analyzed concept labels, value terms, and total words within junior high school students written critiques of a drawing and a painting. The "posttest only" control group design was used for this study. The researchers noted that both qualitative and quantitative learnings (increased number of terms) were observable through the use of written critique responses. Gardner (1973-74) found that tasks involved in one of his experiments enabled the students to demonstrate finer discriminations and even stimulated them to consider central questions related to aesthetics. Students discussed and compared different slide projections and manipulations of the same picture and identified factors involved in style discrimination. Rarely were verbal measures used exclusively in the present studies examined. This suggested a trend away from the exclusive use of verbal measures towards greater reliance on nonverbal experimental measures to assess learning in studies of art viewing processes. Smets & Knops (1976) proposed a combination of both verbal and nonverbal measures. They observed that earlier experimenters relied almost exclusively on studies of verbal reactions to works of art even though the arousal reaction contained nonverbal behavior. This trend away from strictly using verbal responses may be attributed to the belief that measurements of verbal responses alone are inappropriate indicators of art viewing behavior. While verbal measures can be appropriately used to infer what information was processed and retained by a viewer of art (Wilson, 1970, 1972; Koroscik, 1982), they are generally not suitable indicators of what information the viewer did <u>not</u> process (DePorter, & Kavanaugh, 1978).

Interestingly, nonverbal measures used in the studies examined were often plagued with similarly restrictive limitations. The majority of experiments studied for this report employed nonverbal testing procedures in which subjects compared artworks and judged their similarities and thus their differences. While subjects were often presented with criteria for making their responses, the

experimental measures rarely applied the precision necessary to determine what visual art information (if any) subjects actually used in their similarity-dissimilarity judgments. Berlyne (1975) and his associate (Cupchik, 1974) went to great lengths in guarding against this problem by employing multidimensional scaling procedures in their assessments of similarity judgments. Goude (1972) also suggested that multidimensional scaling offered the more suitable approach for investigating aesthetic perception as well as enabling researchers to interpret similarity estimations by subjects. Nevertheless, Berlyne (1975), himself, remarked that similarity judgments of visual art stimuli are extremely difficult to interpret because aesthetic patterns will usually differ in so many respects that it is hard to tell which factor is responsible for any perceived similarities or differences. The researcher is further disadvantaged by not knowing whether it is the structural elements or the semantic dimensions of the stimuli that subjects responded to when making their judgments.

Several investigations reviewed in this study attempted to overcome the limitations of nonverbal measures by having subjects verbally explain or justify their nonverbal responses. While this testing procedure was used profitably when applied without violation of experimental principles (Rush & Saber, 1981), it also lead to the misinterpretation of results (DePorter & Kavanaugh, 1978). The latter occurred when researchers lost sight of the fact that verbal and nonverbal testing procedures are disparate measures of learning and thus cannot be interpreted interchangeably in a discussion of findings. Such a discussion is only appropriate after testing and rejection of the hypothesis: Experimental Measure A (verbal testing method) ≠ Experimental Measure B (nonverbal testing method). No such tests were made in the investigations examined in the present study, thus serious misinterpretations of findings resulted.

Conclusions

The findings of this investigation point up the need for continued study of art viewing processes in a learning context. The importance of such research is evident at a time when educating student responses to works of art has become a major goal of art education. Results suggest theoretical and practical application of future studies would benefit most from research that strives to develop experimental measures that are sensitive to the demands of the visual art viewing experience.

References

Boyer, B. A. An examination of experimental aesthetic research from 1970 to 1980 related to the visual perception of paintings with implications for art education. Unpublished doctoral dissertation, Univeristy of Oregon, 1980.

Davis, D. J. Bibliography. In S. S. Madeja (Ed.), Arts and aesthetics: An agenda for the future. St. Louis: CEMREL, 1977.

Hardiman, G. W., & Zernich, T. Preferences for the visual arts: A review of recent studies. Perceptual and Motor Skills, 1977, 44, 455-463.

McWhinnie, H. J. A review of selected aspects of empirical aethetics: III. The Journal of Aesthetic Education, 1971 5(4), 115-126.

Parsons, M. J. A suggestion concerning the development of aesthetic experience in children. Journal of Aesthetics and Art Criticism, 1977, 305-314.

Smets, G., & Knops, L. Measuring visual esthetic sensitivity: An Alternative procedure. Perceptual and Motor Skills, 1976, 42(3), 867-874.

Studies Reviewed

Bengston, J. K., Schoeller, J., & Cohen, S. J. On conceptualizing an artistic style: How critical are examples? Studies in Art Education, 1978, 20(1), 49-55.
The purpose of the three experiments was to determine whether concept learning is enhanced by providing multiple examples of an artistic style prior to the discrimination of surrealistic paintings from nonexamples of surrealism.

Berlyne, D. E. Dimensions of perception of exotic and pre-Renaissance paintings. Canadian Journal of Psychology, 175, 29(2), 151-173.
The purpose of the five experiments that used a sampling of non-Western and pre-Renaissance Western paintings was to assess (1) pairwise similarity-dissimilarity ratings, (2) collative and affective ratings, (3) stylistic ratings, (4) looking time, and (4) pairwise preference ratings.

Clark, G. A. Analyzing iconic learning in the visual arts. Studies in Art Education, 1973, 14(3), 35-47.
"This investigation was designed to analyze children's responses to the tasks of forming visual concepts on the basis of observed visual similarities among art reproductions and of generalizing visual concepts to additional art reproductions" (p. 36).

Cupchik, G. C. An experimental investigation of perceptual and stylistic dimensions of paintings suggested by art history. In D. E. Berlyne (Ed.), Studies in the new experimental aesthetics: Steps toward an objective psychology of aesthetic appreciation. Washington, D.C.: Hemisphere Publishing Co., 1974.
The purpose of Experiment I was to determine the dimensions underlying the perception of stylistic similarity among a set of

16 slide reproductions of paintings. In Experiment II, information was sought concerning the interrelations among the rating scale. It was anticipated that such data would aid in identifying the dimensions derived from the first experiment.

DePorter, D., & Kavanaugh, R. Parameters of children's sensitivity to painting styles. Studies in Art Education, 1978, 20(1), 43-48.
This experiment was designed to determine whether eighth grade students display greater sensitivity to painting styles than fourth graders as indicated by their verbal justifications to match-to-sample test responses that demanded the discrimination of an artist's work from other examples of nonexamples with similar and dissimilar subject matter.

Douglas, N. J., Schwartz, J. B., & Taylor, J. B. The relationship of cognitive style of young children and their modes of responding to paintings. Studies in Art Education, 1981, 22(3), 24-31.
The purpose of this study was to determine the effects of age and gender on the relationship of cognitive style to young children's modes of responding to paintings.

Gardner, H. The contribution of color and texture to the detection of painting styles. Studies in Art Education, 1973-74, 15(3), 57-62.
This experiment was designed to study the effects of color, texture, and heterogeneous subject matter on high school students' ease in detecting artwork from a test array that matched the same artist's work in a standard array.

Gardner, H., & Gardner, J. Developmental trends in sensitivity to form and subject matter in paintings. Studies in Art Education, 1973, 14(2), 52-56.
The purpose of this experiment was to determine subjects' concept of similarity in responding to works of art. Do they sort artworks primarily on the basis of form, subject matter, or both? Are there developmental trends and sex differences that govern sorting responses? What are the characteristics of behavioral patterns, approach strategies, and reasons found at each age level?

Gardner, H., & Gardner, J. Developmental trends in sensitivity to painting style and subject matter. Studies in Art Education, 1970, 12(1), 11-16.
The purposes of this study were (1) to assess whether children of different ages and developmental stages ordinarily employ the same criteria in making judgments about similarities among paintings, and (2) to determine how natural sorting tendencies of children varied in age are affected by instruction directing them to attend to stylistic features.

Goude, G. A multidimensional scaling approach to the perception of art: II. Scandinavian Journal of Psychology, 1972, 13(4), 272-284.
The purpose of this study was to identify a system that describes similarities as well as differences among different styles in art by testing a similarity model for multidimensional scaling.

Hysell, D. M. Testing an advance organizer model in the development of aesthetic perception. Studies in Art Education, 1973, 14(3), 9-17.
The study was designed to investigate the effects of a specific instructional strategy, employing an advance organizer, upon skill in aesthetic perception as determined by the total number of elements or properties subjects described in written statements about art.

Koroscik, J. S. Structural information retention in visual art processing. American Educational Research Association, Montreal, April 1983.
The purpose of this study was to compare recognition performance for two testing procedures (i.e., identification vs. discrimination tests) by examining the accuracy of nonart college students' long term retention of stuctural information displayed in reproductions of the original and eight copies of the Mona Lisa.

Koroscik, J. S. The effects of prior knowledge, presentation time, and task demands on visual art processing. Studies in Art Education, 1982, 23(3), 13-22.
The study was designed to test the "depth of processing" hypothesis (Craik & Lockhart, 1972) by investigating the effects of prior knowledge, presentation time, and task demands on information processed by viewers confronted with artworks of varying levels of abstraction. Specifically, it was hypothesized that greater prior knowledge of art, longer viewing times, semantic tasks demands, and low levels of abstraction stimulate greater encoding and retention of visual art.

Koroscik, J. S., & Blinn, L. M. The effect of verbalization on visual art processing and retention. Studies in Art Education, in press.
The questions posed by this investigation asked whether verbal interaction with visual art facilitates the processing of stimulus information to a level that exceeds nonverbal response strategies, and whether verbalization has a differential effect on the encoding and retention of structural and semantic dimensions of visual art varied in abstraction level.

Kunnapas, T., & Norman, M. Interindividual differences in similarity estimates of paintings. Scandinavian Journal of Psychology, 1971, 12, 161-177.

The purpose of this study was to determine by multidimensional similarity analysis the differences in similarity estimates of paintings by art school pupils and nonart students.

O'Hare, D. Individual differences in perceived similarity and preference for visual art: A multidimensional scaling analysis. Perception and Psychophysics, 1976, 20(6), 445-452.
The purpose of this study was to investigate the nature of differences in the perceived similarity of reproductions of paintings by the use of multidimensional scaling techniques.

O'Hare, D. P., & Gordon, I. E. An application of repertory grid technique to aesthetic measurement. Perception and Motor Skills, 1976, 42(3), 1183-1192.
The usefulness of a repertory grid method in the measurement of complex aesthetic responses to works of art was examined in the investigation.

Rush, J. C. Acquiring a concept of painting style. Studies in Art Education, 1979, 20(2), 43-51.
The experiment compared the effects of six different methods for teaching a concept of painting style (2 levels of a teaching strategies variable X 3 levels of an amount-of-information variable) on immediate and delayed generalization of a concept of painting style as well as of concept (training) retention.

Rush, J. C., & Sabers, D. L. The perception of artistic style. Studies in Art Education, 1981, 23(1), 24-32.
"Artistically naive college students given minimal training categorized color slides of paintings according to individual artistic style. Students responded nonverbally on a ten-point rating scale, allowing us to describe the degree of perceived style similarity or dissimilarity among the artists and to note perceived style variations among the works of each artist. Students also reported the specific attributes that they considered characteristic of each artist's work" (p. 24).

Rychlak, J. F. Affective assessment in the recognition of designs and paintings by elementary school children. Child Development, 1975, 46(1), 62-70.
The purpose of this study was to determine by group testing the influence of positive and negative reinforcement value on children's recognition learning of designs and paintings.

Smets, G., & Knops, L. Measuring visual esthetic sensitivity: An Alternative procedure. Perceptual and Motor Skills, 1976, 42(3), 867-874.
The experiment measured art and nonart college students' visual esthetic sensitivity in tests that asked them to judge whether paintings were or were not by the same artist. Unlike conventional tests of esthetic sensitivity this measure was based on right or wrong answers in a factual sense and not right or wrong

on the basis of a consensus of opinion thus allowing the experimenters to assess the responses given by subjects.

Stahl, R. J., & Webster, N. C. Validating a model for art and aesthetic awareness activities: Results of an experimental study. Studies in Art Education, 1978, 19(2), 19-33.
The study examined the effect of instruction in drawing, form, space, composition, line, and proportion concepts on the length and frequency of seventh and eighth grade students' use of concept labels and value terms in written critiques of a drawing and a painting.

Wilson, B. The relationship between years of art training and the use of aesthetic judgmental criteria among high school students. Studies in Art Education, 1972, 13(2), 34-43.
The purposes of this study were (1) to determine the nature of criteria used by high school students in judging the aesthetic merit of works of art, (2) to determine if there were differences in the criteria used by students with differing amounts of high school art training, and (3) to evaluate the adequacy of the criteria used in making judgments of aesthetic merit.

Wilson, B. Relationships among art teachers', art critics, and art historians, and nonart trained individuals' statements about Guernica. Studies in Art Education, 1970, 12(1), 31-39.
The purpose of this study was to determine if there are significant differences among the evaluations, descriptions, and explanations given about a work of art by art teachers, art historians and critics, and nonart trained individuals.

Arts Integrated Curriculum for Grades K-6: The Determination of Program Impact

Jon C. Marshall
University of Missouri-St. Louis

Suellyn Garner
Charleston, Illinois

Artistic expression begins early in a child's development through pretending, singing, drawing and moving to music. Such natural activity must continue through the elementary school years. To confine instruction to discrete skills and minimal competencies in verbal and numerical expression is to extremely limit the learning sphere of children (Greene, 1981). Arts instruction provides limitless opportunities for children to create, ponder, problem-solve and communicate.

All curricular areas include skills and concepts that interrelate with the arts. Arts integration is the process through which these common concepts are interwoven in the curriculum (Goodlad & Morrison, 1980). So defined, arts integration differs drastically from the long time practice of elementary curriculum in which a social studies lesson is supplemented by singing about the country being studied, or reproductions of paintings done by that country's artists are viewed. When the arts are truly integrated, the students may indeed learn the music of a given country, but they also will be taught the unique cultural differences of that music and will create such music themselves. Arts integration is planned arts involvement taught on a non-incidental basis by the classroom teacher. Through this process, the creative, aesthetic nature of arts learning is added to the cognitive aspect of "knowing about" the arts.

While education's return to the basic skills defined as reading, writing and arithmetic, was probably justified, its result has been to reduce the activity of education to a set of narrowly defined prescriptions (Burke, 1983). The essence of this is the reduction of a beautiful and exciting process to mundane, rudimentary exercises. The inclusion of the arts in the curriculum can protect against this potential result of the basic skills movement. When arts are integrated into the curriculum, the entire range of human experience can be considered.

Arts integration places arts instruction at the level of the other basic skills. In the public school system, arts instruction has been either a "tack-on" to the curriculum in social studies units or a specialty subject for talented students. At the elementary level this specialty instruction often has been during non-school hours, either very early in the morning before school or

immediately after school. During lean economic years this extra-curricular instruction is easily made expendable, thus all but eliminating the arts from the curriculum. Through arts integration, the basic arts skills like balance or measurement are taught as they interrelate to music, visual art, mathematics, sciences or any other curricular area. Through this process the basic arts skills become part of every student's background along with the other basic content skills of reading, mathematics, and the like. Knowledge of arts skills is no longer the domain only of the specially talented. Rather the arts become part of the whole of every educated person.

The purpose for this study was to determine the impact of an arts integrated curriculum implemented in grades kindergarten through grade 6.

The Program

The arts integrated intervention consisted of 27 arts-integrated curriculum modules, four modules each for grades kindergarten through six. Three units were developed for grade five. The units were non-sequential and were designed to be taught during the fall and two units were taught during the spring. The units were written using the three concept areas of culture, measurement, and balance. Fourteen of the units were in culture and seven each in measurement and balance. The units integrated the arts areas of music, visual art, dance, dramatics, creative writing with mathematics, reading, science, social studies, physical education, language arts, and health. The culture units were developed and taught during the first year. The measurement and balance units were developed during the second year and all units were taught during both the second and third years of the study.

Each unit contained a statement of rationale that linked the unit and the primary concept of culture, measurement or balance. The unit objective, pretests and posttests for unit level evaluation, and a series of lesson plans, each with its own sub-objectives were also included. Each lesson described the process required to achieve the objective, listed supplies needed, told what materials needed to be prepared in advance, supplementary materials and books, art reproductions, filmstrips, music required, and evaluation procedures. A complete bibliography was included at the end of each unit. The units taught are presented below.

Kindergarten

Plant Families. The concept of families is linked to all living things while children learn to discern among animals, plants, and manufactured products; categorize plants; and recognize plants in visual art. (Spring, 70 minutes)

What is a Family. Kindergarteners are helped to understand the nature of familial relationships including musical instrument families and children's roles and responsibilities in the family and society. (Fall, 70 minutes)

Managing Measurement. Students are given hands-on experiences measuring physical, visual, temporal, and aural aspects of the environment, attending to all subject areas, including the arts. (Fall, 60 minutes)

Basic Balance. The ways that balance occurs within the contexts of the arts, health, physical science, nature, and society is explored.

First Grade

Transportation. Transportation is viewed from a cultural perspective by learning about how goods and people are moved in various regions of the world. The students also learn about customs and the arts. (Winter, 50 minutes)

Career Awareness. Careers of the past, present, and future, including those related to the arts are investigated in an atmosphere free of prejudice and discrimination. (Spring, 50 minutes)

The Four Seasons. Activities and events of the four midwestern seasons are examined and students are helped to express this knowledge artistically in order to understand the rhythm of the seasons and the balance of nature. (Fall, 60 minutes)

Measuring Up to Balanced Nutrition. The concepts of measurement and balance are applied to the arts as well as to good health through creative movement, creative writing, music, visual art, and creative dramatics. (Winter, 60 minutes)

Second Grade

Japan and Illinois. A Comparison: Similarities and differences between Japan and Illinois are studied, considering geography, climate, geology, arts, life styles, and beliefs. (Winter, 30 minutes)

Japan: Celebration in Two Cultures. Various Japanese festivals, comparing them to American celebrations, are considered using the role of festivals and the arts in the life styles and cultures of nations. (Winter, 30 minutes)

Going Crackers Over Animals. Animals are identified and the process of classifying them is begun in five groups incorporating textbook materials, visual art, creative movement, poetry, and music. (Fall, 50 minutes)

Marvelous World of Maps. Readiness for the study of distance measurement is provided and the use of scale examined while discovering commonalities between the cartographer and artist. (Spring, 40 minutes)

Third Grade

Communities in My Country. Sheep Ranching: The arts are woven throughout the study of sheep ranching, considering interdependence of communities, visual perspective, creative writing, and music. (Winter, 180 minutes)

Me and My State: Illinois. A sense of awareness and pride in considering the artistic/cultural heritage of Illinois is provided in order to give children a sense of perspective about their state in the past, present, and future. (Easily adaptable to other states.) (Spring, 180 minutes)

Fractured Fractions. Fractions are applied to all facets of the curriculum including the arts so students can see and/or hear whole/part relationships mathematically and artistically. (Winter, 180 minutes)

Time and Money. Historical, philosophical, and practical aspects of temporal and monetary standardization are explored through hands-on practice with real timing devices and real money as well as through aural and visual artistic expression. (Fall, 180 minutes)

Fourth Grade

Me and My Country. The question, "Did the formation of a new country create a new culture, or is America the product of many cultures?" is addressed and implications discussed for the arts with each premise. (Fall, 60 minutes)

New Orleans. The significance of this major port city in the development of trade and expansion of the United States is developed. Further discussions are on the roots and early development of the American musical art form, jazz. (Winter, 30 minutes)

Measuring. Students are taught the vocabulary, symbols, and tools of measurement in the areas of cartography, the arts, and ecology. (Fall, 75 minutes)

Balance in Nutrition. Balance is studied as a common element in arts and nutrition so children can recognize a balanced painting as well as a balanced meal. (Spring, 75 minutes)

Fifth Grade

Me and My Country: The Civil War. The era, arts, and events associated with the American Civil War through the building of models is taught depicting famous and infamous places and events. (Winter, 120 minutes)

Rocky Mountain States. The understanding which comes from involvement in a cooperative, creative venture is experienced as the class molds mountains and plains in papier mache and learns of the lore and richness of a significant geographical and artistic area of North America. (Spring, 90 minutes)

Modeling Measurement. Measurement is related to language skills, drafting, architecture, mathematics, music, biology, visual arts, and creative movement. (Spring, 90 minutes)

Sixth Grade

Me and My World. Africa: Students sing and dance into tribal and modern Africa, learning the lay of the land, the ways of the people, and their arts. (Winter, 90 minutes)

Japan: Land and People. Japan is viewed in classroom trip from traditional to today. Government, technology, sumi-e, painting, Haiku and drama add variety for the journey. (Spring, 75 minutes)

Measurement and Balance in Daily Living. The tools of measuring everything from the playground to poetry, from mental health to music are taught and students discover that measurement creates balance, a prime consideration in everyday living, including the arts. (Spring, 90 minutes)

Universal Measurement and Balance. Students go metric in more ways than one from centimeter to pentameter--mathematics to poetry. (Fall, 90 minutes)

Method

Design

The research procedure used was a multiple measure nonequivalent control group design. Since the teachers using the intervention had volunteered to participate, the treatment variable was assigned resulting in an ex post facto design. Equivalence was obtained the first year through matching experimental and control students using pretest scores, sex and grade level. However, since the control students included in the study were found to be near identical in posttest scores to the control students not included, the matching process was dropped for the second and third years of data collection.

Sample

The samples used in the study consisted of the students of teachers using the arts integrated curriculum units and the students of teachers using the conventional curriculum. The teachers taught grades kindergarten through six in a public school district in East Central Illinois. The district included the following three communities: (1) a small college town of about 20,000 people; (2) a rural community of under 600 people; and (3) a rural community of under 400 people. District student enrollment was around 3200. About 72 percent of the students pursue higher education after graduation.

All students in the district were involved in the research process for the three developmental years of the project. During the first year group equivalent was assured by matching control students with the ABE students using pretest score, within one point, sex and grade level. This resulted in treatment and control samples ranging in size from 24 to 69 students per grade level. The pretest mean scores for the comparison samples and the non-comparison sample were near identical for the first year data. This suggested that the treatment students were sufficiently distributed through the available population so that the matching process was not necessary. Thus matching was dropped for the second and third year studies, with all data producing students included in the analyses. The sample sizes of the three evaluations are presented in Table 1.

TABLE 1. Data Producing Sample for the 1980, 1981 and 1982 Evaluations

YEAR	GROUP	GRADE						
		K	1	2	3	4	5	6
1980	Experimental	69	48	26	50	17	24	56
	Control	69	48	26	50	17	24	56
1981	Experimental	110	41	62	59	28	21	84
	Control	132	169	170	125	156	144	90
1982	Experimental	115	66	20	49	29	20	85
	Control	121	162	189	157	144	170	85

Since the units were not sequential in skill development and treatment teachers were located throughout the district, as opposed to having a treatment school, there were yearly changes in experimental and control students, three one-year evaluations were completed. Only a small number of students experienced multiple years of the treatment.

Instrumentation

Foremost in determining arts-integrated effectiveness is the issue of assessing arts achievement. The methods generally used for assessing arts achievement either relate to performance skills or to knowledge of specific arts products. Assessment using performance assumes that the skill accomplishment of performing some arts activity should be the focus for arts instruction. This assumption has tended to relegate the arts to the talented or the wealthy who can afford specialized training. Arts-integration starts with a different assumption. In arts-integration, it is assumed that there are identifiable concepts that are basic to the arts and to other content areas of science, mathematics, language arts, and social studies that can and should be taught to all students as part of the fundamentals of education. Since these skills are identifiable, they can be specified in behavioral objectives and assessed using objective-referenced tests. Following are sample objectives that were included in the arts integrated curriculum.

1. Can measure syllables and lines to create poetry.
2. Can interpret even and uneven rhythms through body movement.
3. Can divide a unit into its given parts.
4. Can assign values to rhythmic symbols relative to a given.
5. Can stabilize or redistribute body weight to maintain balance.
6. Can specify aspects of balance in nature.
7. Can interpret demographic distribution symbols on a map.
8. Can create symmetrical and asymmetrical designs.

Measurement of behaviorally specified objectives provided construct validity for the assessment of student achievement. Selection-type test items were developed by the co-authors and others specific to the stated objectives.

For grades K and 1, picture test booklets consisting of 22 and 23 three-response items were developed. For grade 3, a picture test booklet containing 25 four-response items was used. For grades 3-6, the test consisted of reusable test booklets of 44 to 49 four response items. The reliabilities for these initial tests ranged from a low of .66 to a high of .82, with the mode value being .79. Based on the 1980 data, item analyses were run using item discrimination and difficulty indices. With this information, the tests were finalized. The K-2 level test became a multilevel instrument printed on NCS paper as a scannable test booklet consisting of 70 cognitive items. The grade 3-6 tests were revised

into separate grade level reusable booklets. The test statistics are presented in Table 2. The initial versions of the tests were used for evaluation data obtained during the spring of 1980 and during the 1980-1981 project year. The revised tests were used to obtain the data for the 1981-1982 project year.

TABLE 2. Characteristics of the ABE Achievement Tests (ABET)

LEVEL	N	Mean	SD	NUMBER ITEMS	-Reliability
Kindergarten	236	10.70	4.41	22	0.75
Grade 1	228	11.44	3.57	23	0.73
Grade 2	209	12.31	4.48	25	0.72
Grade 3	206	20.36	5.82	42	0.83
Grade 4	173	22.00	6.47	45	0.75
Grade 5	190	21.94	7.43	45	0.80
Grade 6	170	22.21	6.83	45	0.78

All testing materials were stored in the district central office and were available to teachers only at the time of administration. All test administration was done by classroom teachers under district level supervision. During the initial two data collection periods, test scoring for the K-2 picture booklets was done by community volunteers. The booklets were precoded so that the volunteers were not aware of the group classifications for them. For the third project year, all answer sheets were machine processed using a NCS scanner.

Validity of the instruments was established two ways. First, every item was developed to measure specified objectives. As the items were being constructed, they were reviewed by at least one curriculum specialist and one measurement specialist to assure that they matched the specified objectives and were reasonable expectations for the grade level intended. The second procedure for validity verification was through outside review by content experts.

Results

For the first year data, two factorial analyses of covariance were used to determine the significance of differences among the means. A two by three analysis was used for the grade K-2 data and a two by four analysis was used for the grade 3-6 data. The groups were the experimental students and the control students; the levels were the three primary grade levels and the four intermediate grade levels. The interaction was significant for the primary level and the groups and levels analyses were significant at the intermediate level (see Table 3). The appropriate group means are presented in

TABLE 3. First Year Analysis

LEVEL	SOURCE	SS	df	MS	F
K-2	BETWEEN	44.12	5		
	Groups	6.61	1	6.61	2.06
	Levels	12.53	2	6.26	1.96
	G by L	25.78	2	12.89	4.03*
	ERROR	1856.45	280	3.20	
3-6	BETWEEN	252.18	7		
	Groups	58.46	1	58.46	5.83*
	Levels	154.16	3	58.38	5.12#
	G by L	39.56	3	13.19	1.32

*p < .05 #p < .01

Table 4. Using Tukey HSD Test, significant differences in means were found at grade 1 and grade 3-6. At these grades the experimental group showed significantly higher achievement than the control students.

These same analyses were repeated for the second year intervention. Since few of the second year students had participated in the first year and since the treatment units are not sequential, the second year analysis served as a cross-validation of the first year results. Of note, the second set of units was introduced during this second project year. The covariance analyses are reported in Table 5 and the means are presented in Table 6.

For the second year all analyses were significant. Thus, in each analysis, the Group by Levels interaction is the highlight of the results. All grade level means favored the treatment students. The most dramatic effects seemed to be at grades 2 and 3. The only nonsignificant result was at grade 4. In general, the experimental

groups tended to show the most positive achievement, with the differences within grade levels being about one-half standard deviation on the achievement tests.

TABLE 4. Relevant Means for First Year

LEVEL	GROUP	PRETEST	POSTTEST	ADJUSTED
K	EXP	13.32	14.46	15.33
	CONT	13.62	14.87	15.33
1	EXP	13.75	15.28	15.71 #
	CONT	13.20	14.05	14.77
2	EXP	16.37	16.78	15.87
	CONT	16.48	16.66	15.74
3-6	EXP	11.91	14.35	14.28 #
	CONT	11.85	13.37	13.27

*p < .05 #p < .01

TABLE 5. Second Year Analysis

LEVEL	SOURCE	SS	df	MS	F
K-2	BETWEEN	1747.53	5		
	Groups	929.45	1	929.45	47.36#
	Levels	218.34	2	109.17	5.56#
	G by L	599.74	2	149.87	15.28#
	ERROR	13286.56	677	19.62	
3-6	BETWEEN	3695.57	7		
	Groups	933.12	1	933.12	26.98#
	Levels	2283.95	3	761.32	22.01#
	G by L	442.97	3	147.50	4.26#
	ERROR	24141.97	698	34.59	

*p < .05 #p < .01

The third year evaluation followed the same design. About half of the students in the experimental group had participated in the treatment one previous year. The control group consisted of about the same number of past participants. This third year of the project was assessed using the final revised forms of the achievement tests. The scores at each level were converted to percent

TABLE 6. Relevant Means for Second Year

LEVEL	GROUP	PRETEST	POSTTEST	ADJUSTED	
K	ABE	23.38	13.59	13.59	*
	CONT	24.49	12.20	12.70	
1	ABE	24.88	12.34	12.34	*
	CONT	24.58	10.76	10.76	
2	ABE	25.03	15.48	15.48	#
	CONT	24.34	9.94	9.94	
3	ABE	11.20	27.49	29.80	#
	CONT	11.88	22.17	23.99	
4	ABE	14.79	22.14	21.85	
	CONT	15.55	21.68	20.83	
5	ABE	15.57	25.57	24.70	*
	CONT	14.94	22.43	22.02	
6	ABE	14.77	23.37	23.08	#
	CONT	16.21	22.29	20.95	

*p < .05 #p < .01

correct scores, with an overall standard deviation of 4.52. The data analysis was completed using a Group by Grade Mixed Models Analysis of Variance. The groups variable consisted of the experimental and control students. The levels were kindergarten through grade six. Time referred to the fall 1981 pretest and the spring 1982 posttest. All analyses except for the levels comparison were significant. Thus, the Time by Groups by Levels triple interaction was the highlight of the data analysis. The third year analysis is presented in Table 7 and the means are shown in Table 8. The differences between the means were significant at the .05 level for grades K, 1 and 3-6 and at the .10 level for grade 2. The most dramatic effects occurred at grades 1, 3 and 5. In examining the results, it should be remembered that an about equal numbers of control to experimental students had at least one year of previous exposure to the ABE treatment. This would tend to increase the likelihood of a Type II Error. The third year results are graphically presented in Figure 1.

Conclusions

Few people would dispute the need for arts skills. Most districts include the arts in their curriculum, often as special topic areas to be taught by specialists in music, art, drama, and/or dance. Recently, it has been recognized that the arts

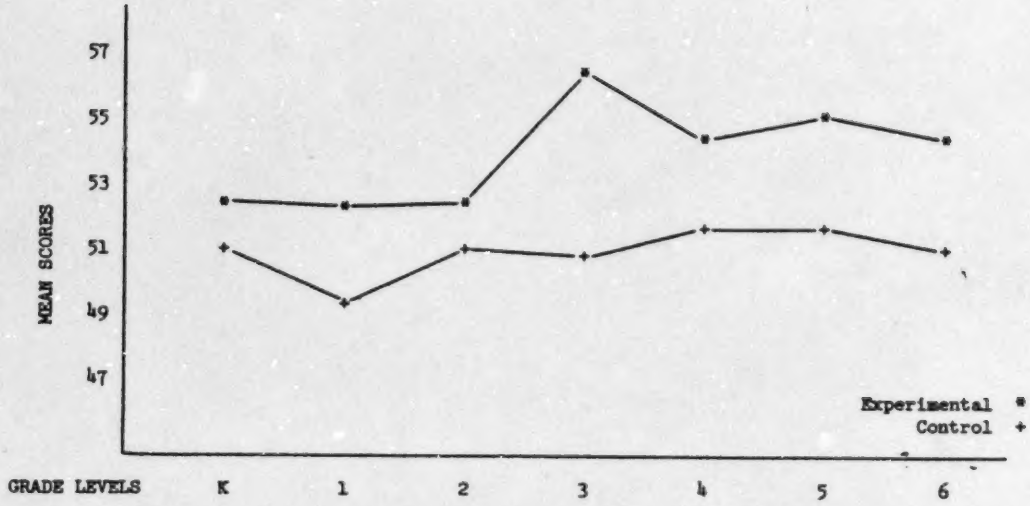


Figure 1. Posttest Means for the Third Year Analysis

include many skills that also are fundamental to mathematics, language arts, social studies and science; and, not just specialized skills for the "artistically talented." With this realization, attention has been drawn to the teaching of the arts as one of the basic skill areas integrated with mathematics, language arts, social studies, and science. The data from this study indicate that during the treatment period the students of teachers using arts integrated curriculum learned more than the students of teachers using the regular non-integrated curriculum.

TABLE 7. Third Year Analysis

SOURCE	SS	df	MS	F
BETWEEN	43607.03	1406		
Groups	489.86	1	489.86	16.16#
Levels	211.86	6	35.31	1.16
G by L	676.46	6	112.74	3.72#
ERROR	42228.85	1393	30.93	
WITHIN	23147.56	1394		
Time	1579.77	1	1579.77	107.11#
T by G	63.10	1	63.10	4.28*
T by L	675.30	6	112.55	7.63#
T by G by L	283.23	6	47.20	3.20#
ERROR	20546.16	1393	14.75	

*p < .05 #p < .01

In addition, it can be noted that for the third year study, the students of the experimental teachers showed an increase of 2.24 score points (from +.10 to +2.34) over the control students, for a difference of 0.50 standard deviations. This ratio ran from a low of .20 at the kindergarten level to a high of .90 at the third grade level. The ratios for grades one, three, five and six were above the .50 level. These gains for the experimental group over the control group, averaging 0.50 standard deviations, are of the magnitude that would be expected in an effective program.

TABLE 8. Relevant Means for Third Year, Analysis

GRADE LEVEL	GROUP	PRETEST	POSTTEST	NUMBER
Kindergarten	ABE	48.87	52.39	115
	CONTROL	48.46	50.98	121
1	ABE	49.77	52.17	66
	CONTROL	49.61	49.34	162
2	ABE	49.05	52.45	20
	CONTROL	49.27	50.93	189
3	ABE	49.71	55.60	49
	CONTROL	49.04	50.64	157
4	ABE	49.03	53.40	29
	CONTROL	48.86	51.26	144
5	ABE	48.65	54.60	20
	CONTROL	48.74	51.80	170
6	ABE	49.07	52.98	85
	CONTROL	49.63	50.01	85
Kindergarten		48.66	51.66	236
1		49.72	49.87	228
2		49.25	51.05	209
3		48.48	51.80	206
4		48.89	51.60	173
5		48.75	52.10	190
6		49.35	51.40	170
	ABE	49.18	53.09	384
	CONTROL	49.08	50.75	1028

..... $p < .10$
----- $p < .05$
_____ $p < .01$

References

Greene, M. Integrations and arts spaces: Challenging the either/or. In A. Kinzey (Ed.), Arts and the child, a North Carolina conference. North Carolina Department of Cultural Resources, 1981.

Goodlad, J. I. & Morrison, J. The arts and education. In J. Hausman (Ed.), Arts and the schools. New York: McGraw-Hill, 1980.

Burke, F. G. Putting arts education on top: A view from the top. Art Education, 1983 (January).

The Relative Effects of Three Creative Drama Approaches on the Dramatic Behavior and Mental Imagery Ability of Elementary School Children

Helane S. Rosenberg and Patricia Pinciotti
Rutgers University

A relatively new field, creative drama was begun in America by Winifred Ward. Ward's approach, outlined in her text Creative Dramatics (1930), was the primary American approach for over thirty years. By the sixties and seventies, a variety of vastly different approaches, some originating from England, some from America, were being developed. The major approaches - the Spolin (1963), the Way (1967), the Heathcote (1971), the Siks (1977), and RIM (1982) - are each based on a particular point of view. All, however, have at their core the improvisational dramatic experience, imagination and the use of drama as an educative process.

Research within the field of creative drama is also in its infancy. Only with the development of advanced degrees in the field of child drama have there been empirical investigations of any sort. These empirical studies utilize creative drama activities as a tool to each subject matter, learn specific skills or affect change in another area other than creative drama itself. The purpose of these studies is, of course, to prove creative drama's applicability and strength as an educative tool. One particularly popular type of study measures the effects of drama on various language arts skills (Dunn, 1977; Harris & Rosenberg, 1983; Henderson & Shanker, 1978; Paley, 1978; Rice, 1971; Ridel, 1975; Snyder-Greco, 1983; Stewig & Young, 1978; Strickland, 1973). Other studies measure the effect of creative drama on various cognitive abilities (Cercone, 1977; Furman, 1981). Another type of study investigates the relationship between participation in creative drama and the development of self-concept, self-monitoring or creative ability (Aller, 1969; Huntsman, 1982; Karioth, 1968; Noble, Egan & McDowell, 1977; Pate, 1978; Pisaneschi, 1977; Prokes, 1971; Wilkerson, 1983; Youngers, 1978). Several studies measure the effects of creative drama on role playing or talking abilities (Burns & Brainerd, 1979; Lunz, 1974; Rosen, 1974; Wright, 1974).

Internal empirical investigations strive to clarify questions within the creative drama process itself. In the field of creative drama, only three empirical studies are of this nature: Lazier, Sutton-Smith, and Zahn's extensive work in the development of the Inventory of Dramatic Behavior (1970, 1971, 1972, 1973), Rosenberg, Pinciotti, and Smith's modification and development of the Inventory of Dramatic Behavior - Adapted for Group Observation (1983), and Allyon and Snyder (1969) measure of the effects of two distinct types of stimuli on the behavior of children in a creative drama situation. The following investigation falls within this category.

Creative Drama: An Overview of Approaches

Creative drama, a relatively new field, deals with the systematic development of drama activities with children aged 7 to 15. Seen along a continuum with theatre on one side and dramatic play on the other, creative drama - somewhere in the middle - utilizes many of the same components: space, time, plot, character, set, costumes, and props. The three essential phases of the creative drama process are imagine, enact, and reflect. Since its inception in American in the 1920's, many methods have emerged, each with a different focus.

The Winifred Ward Approach is the basis of much creative drama practice in America today. Ward's methods were presented first in Creative Dramatics (1930) and subsequently in Playmaking for Children (1957). Many contemporary approaches such as Aldrich and Schwartz (1972), McCaslin (1968), and Siks (1958, 1983) have been developed by former students of Ward. The technique is essentially building block in nature; each skill builds on the next. The leader presents the elements of drama in an inductive progression leading from the easier non-verbal skills of movement and pantomime to the more complex skills of characterization and improvisation, culminating in play-making. Because the enactment of a story or poem is the final goal of drama work, the Ward approach has strong ties to the language arts curriculum. The overall goal of the Ward approach is the individual and social development of the participant, more than the actual performance.

Improvisations for the Theatre (1963), written by theatre director and acting coach Viola Spolin, was originally intended to be used by theatre workshop leaders to train actors in improvisational techniques. Because of the similarity between the goals and structure of acting workshops and the creative drama classroom, the Spolin method was quickly embraced by creative drama leaders. In 1975, Spolin developed the Theatre Game File which presented her previous work in a more accessible recipe file format. As this title suggests, the core of the Spolin approach is a game-like structure. Verbal and non-verbal communication, intuitive self-knowledge, ability to live in the "here-and-now" are among its goals. Leaders facilitate this approach through a technique called side-coaching in which the verbal comments they make help the participants stay focused on the dramatic task. Young people trained exclusively in the Spolin method often use words to convey their objectives and have difficulty becoming emotionally or physically involved in the dramatic enactment.

Developed by a team of researchers at Rutgers University, the Rutgers Imagination Method, called RIM (Chrein, 1982; Pinciotti, 1982), utilizes the image as the core of the creative drama process. Consequently, the leader of the RIM approach must provide an environment where participants can acquire images and utilize imagery skills to create focused involvement and new imaginative

material for drama. The objectives and activities of the approach are based on a three-phased oscillation between image, imaging, and imagination that occurs throughout each part of the drama process. RIM utilizes four major imagery strategies in the development of a lesson: Open Focus, Guiding Images, What If, and Self and Image. Because individuals bring personal memories to the drama, early participation requires introspection and is not as easily accomplished as in more externally-based approaches. Subsequent lessons, however, offer tremendous gratification to participants, who begin to see the importance of their own imagic storehouse in the dramatic process.

Rationale

The transformation of images into dramatic action is at the core of the creative drama experience. The ongoing internal processes occurring within an individual before, during, and after the improvisation are as integral to the creative drama experience as the multi-dimensional behaviors exhibited during the improvisation itself. The impetus for this investigation was an interest in these two phenomena: (1) the ability to recall, control and construct vivid, usable images, and (2) the dramatic behavior of the participants exhibited in an improvisation.

Creative drama offers both a process to nurture and shape images and a media to view the imaginative product. It is therefore imperative that approaches to creative drama develop clear, flexible images in all three phases of the drama experience. It is, however, in the enact phase - through the participant's dramatic behavior in the improvisation - that one can observe the clarity and integration of these images. Imagery ability and dramatic behavior are two of the components which provide unique insight into the individual involved in the creative drama process and a basis on which to compare various creative drama approaches. Therefore, the purpose of this two-study investigation was to see how unique creative drama teaching approaches affect mental imagery ability and dramatic behavior of elementary age school children.

The majority of empirical research in creative drama is oftentimes sketchy as to which teaching approach is used. Such terms as role playing, improvisational drama and drama games are used interchangeably to describe the creative drama experience. Ambiguity as to the context in which the activities take place, their sequence, and the undifferentiated role of the leader compounds and confuses the results of many studies (Massey & Koziol, 1978). No study to date has closely considered those specific internal factors and external behaviors that exist in successful creative drama lessons.

This investigation is important to the field of creative drama for three reasons. Firstly, and perhaps foremost, the studies were conducted by researchers who are well-versed in creative drama theory and practice. Secondly, a conscientious attempt was made to

clearly distinguish between the unique creative drama teaching approaches, thus strengthening research methodology. And thirdly, this investigation focuses on both an internal phenomena and an external product which may in fact shed light on the creative drama process itself.

Method

The investigation was divided into two separate, yet parallel studies. Each study utilized the same perspective, objectives and measurement procedures. Both studies compared either the Ward or Spolin approach to creative drama to the Rutgers Imagination Method (RIM). However, due to differences between the populations the experimental design for each study varied. The hypothesis for the investigation remains: How do different methods of teaching creative drama influence dramatic behavior in an improvisation and imagery ability of elementary aged school children.

Study I

The subjects consisted of fifty-eight fourth grade students in a racially balanced, socioeconomically heterogeneous public school in New Jersey. Three intact class groups of fourth graders were randomly assigned to six instructional units. Within each class group instructional unit (a_1, a_2, a_3) received creative drama instruction using the RIM approach and is considered Treatment Group A. Instructional units (b_1, b_2, b_3) received creative drama instruction using the Winifred Ward approach and is considered Treatment Group B. Both treatment groups received forty minutes of creative drama instruction per week for a total of ten sessions.

Study II

The subjects were comprised of eighty-five fifth grade New Jersey students from a predominately white, suburban, middle to upper-middle class public elementary school. The four fifth grade classes were randomly assigned to treatment groups therefore nesting the classes within groups. The two interventions employed in this study were from the Rutgers Imagination Methods and The Theatre Game File by Viola Spolin. For the purpose of analysis, classes one and three were Treatment Group C (RIM) and two and four were Treatment Group D (Spolin). Both treatment groups received the equivalent amount of creative drama instruction as the groups in Study I.

Data Source

Imagery ability was assessed on the two dimensions of vividness and controllability. Two self-report questionnaires, the Shortened Form of the Betts' Questionnaire Upon Mental Imagery and the Gordon Test of Visual Imagery Control (Richardson, 1969), provided intruspective data on the subjects' ability to create

clear, vivid images in a number of sensory modalities and to control and manipulate visual images at will. These self-report measures were administered prior to the intervention and at its completion.

Changes in dramatic behavior were measured by observing individuals in a group improvisation at the beginning, middle and the end of the intervention. The Inventory of Dramatic Behavior Adapted for Group Observation (IDBG) (Rosenberg, Pinciotti & Smith, 1982) quantified dramatic behavior on five dimensions: the number of dramatic incidents, dramatic acts, repeated acts, characters created, and squares traversed. Observations were done by a team of four raters who were blind to the interventions. The raters also made annotative comments on the quality of behaviors observed.

Data on vividness and controllability of imagery and the five dimensions of dramatic behavior was analyzed using a three factor (Group x Classes x Time) analysis of variance with repeated measure. Post hoc analysis on significant main effects employed the Duncan new multiple range test.

Results

Study I

All subjects improved their levels of dramatic behavior over the ten week intervention period (Table 1). Subjects receiving the Ward Approach (Group B) showed significantly higher mean scores across the three observations for the dimensions of incidents, acts, repeated acts, and squares traversed (Table 2). Instructional units a_1 and b_1 achieved both the lowest and highest mean scores respectively, averaged across three observations, for dramatic incidents, acts, characters created, and squares traversed (Table 3). The rate of learning was significantly different for each group for the dimensions of dramatic incidents and acts. The RIM Group (A) achieved the greatest gains for both dimensions between the second and third observations, while the Ward Group achieved the greatest gains between the first and second observations. The rate of learning also varied between classes for three dimensions: incidents, acts and squares traversed, showing that the rate of learning was also affected by the combination of group and class.

Imagery vividness increased from the first to the second testing. The RIM Group achieved a higher mean score than did the Ward Group for vividness, averaged over the two testings. Over time levels of imagery controllability also increased from the first to second testing. The RIM Group achieved a higher mean score than did the Ward Group, averaged over the two testings. Although the RIM Group had consistently higher results than the Ward Group, these differences were not shown to be statistically significant.

Table 1

Study I: Mean and F-Statistics
For Growth Over Time

	OBSERVATION			F-Statistic
Subscores	I	II	III	
Characters Created	0.05	0.46	1.82	71.32**
Dramatic Incidents	2.39	2.96	3.36	22.18**
Dramatic Acts	4.60	6.90	12.90	63.43**
Repeated Acts	12.57	8.40	7.86	6.68**
Squares Traversed	6.89	7.97	10.44	5.88**

*p > .05
**p > .01

Table 2

Study I: Averaged Mean and F-Statistic for Differences Between Groups

Subscores	GROUP A	GROUP B	F-Statistic
Characters Created	0.81	0.72	0.35
Dramatic Incidents	2.63	9.37	17.71**
Dramatic Acts	7.01	11.04	8.82**
Repeated Acts	8.29	9.21	5.27*
Squares Traversed	7.21	0.72	8.14**

*p > .05
**p > .01

Table 3

Study I: Average Mean and F-Statistic for Instructional Units

Dimension	Mean Score						F-Statistic
	Group A			Group B			
	a_1	a_2	a_3	b_1	b_2	b_3	
Incidents	2.15	2.74	3.10	4.16	2.69	2.99	24.86**
Acts	5.02	8.15	8.10	10.58	8.05	9.88	4.19**
Repeated Acts	8.87	6.93	9.25	11.49	8.41	13.87	0.62
Squares Traversed	4.71	9.19	7.89	14.89	6.89	8.72	17.48**
Characters Created	0.43	0.99	1.07	1.09	0.67	0.46	6.77*

*$p < .05$
**$p < .01$

Study II

All subjects improved their levels of dramatic behavior over the ten week intervention period (Table 4). The RIM approach (Group C) increased dramatic behavior on more dimensions than did the Spolin Method (Group D). For RIM (Group C), the number of dramatic incidents, acts, characters created, and squares traversed all increased with all but characters created showing statistical differences (Table 5). The Spolin Group (D) showed increases in mean scores for only dramatic acts and characters created, none of which were significantly more than the RIM Group.

Over time vividness scores for the Spolin Group (D) increased slightly as a group and as unique classes, whereas the RIM Group (C) means showed a proportionate decline in vividness for group and nested classes. This difference was statistically significant. It is interesting to note that the RIM Group (C) demonstrated a longer latency period in the imagery vividness post-test. Controllability scores for all groups increased over time. The classes in both Groups demonstrating the lowest controllability scores increased the most substantially in their ability to manipulate and control images at will.

Conclusions

The results of this study suggest that methodological differences have an effect on the development of dramatic behavior and that the effect on an approach is influenced by variables within classes and instructional units. Although leaders with common sense have always instinctively felt the differences among methods and classes, researchers armed with data of this nature can begin to conclude precisely what are differences among approaches and what populations are best serviced by which methods.

The results of this study also demonstrate that vividness and controllability of mental imagery are affected by various approaches to creative drama. Discovering that internal processes, as well as external behavior, are the outcome of a drama experience may help place arts in the mainstream of education. This investigation provides a unique perspective on the creative drama experience by combining the assessment of an internal process and an evaluation of external production. The state of the art demands such introspection to clarify and isolate specific processes in the creative drama experience to allow the leader and participant to benefit more fully from this art form.

*The authors thank Dr. Geraldine H. Chrein for allowing them to use material from her dissertation.

Table 4

Study II: Mean Scores and F-Statistics For Growth Over Time

Observations	I	II	III	F-Statistics
Dramatic Incidents	3.33	3.17	3.20	0.32
Dramatic Acts	5.90	13.33	14.60	60.33**
Repeated Acts	12.19	6.35	6.30	15.99**
Characters Created	0.33	1.02	1.38	38.35**
Squares Traversed	9.02	7.58	6.97	3.79*

*p < .05
**p < .01

Table 5

Study II: Mean Scores and F-Statistic for Groups Over Time

	GROUP C (RIM)			GROUP D (Spolin)			F-Statistic
Dramatic Incidents	2.99	3.25	3.69	3.70	3.08	2.69	7.77**
Dramatic Acts	4.94	14.01	15.52	6.93	12.61	13.63	3.09*
Repeated Acts	11.45	7.30	7.16	12.99	5.35	5.48	1.30
Characters Created	0.39	1.08	1.45	0.27	0.95	1.32	0.06
Squares Traversed	7.99	8.02	8.49	10.12	7.13	5.36	5.91**
Observation	I	II	III	I	II	III	

*p < .05
**p < .01

References

Aldrich, D., & Schwartz, D. T. (Eds.) Give them roots and wings: A guide to drama in the elementary grades. Washington, D.C.: American Theatre Association, 1972.

Allen, E. G. An investigation of change in reading achievement, self-concept and creativity of disadvantaged elementary school children experiencing three methods of training (Doctoral dissertation, University of Southern Mississippi, 1968).

Ayllon, M., & Snyder, S. Behavioral objectives in creative drama. Journal of Education Research, 1969, 62, (8), 355-59.

Burns, S. M., & Brainerd, C. J. Effects of constructive and dramatic play on perspective-taking in very young children. Developmental Psychology, 1979, 15, 512-521.

Cercone, K. L. The effects of the regular use of context related and independent dramatic activities on selected component skills of critical thinking on student attitudes and on the quality of dramatic performances in the English classroom (Doctoral dissertation, University of Pittsburgh, 1977).

Chrein, G. H. The relative effects of two creative drama approaches on the dramatic behavior and mental imagery ability of elementary school children (Doctoral dissertation, Rutgers University, 1982).

Dunn, J. A. The effect of creative dramatics on the oral language abilities and self-esteem of Blacks, Chicanos and Anglos in the second and fifth grades (Doctoral dissertation, University of Colorado at Boulder, 1977).

Furman, L. Creative drama as a vehicle for assessing comprehension. Children's Theatre Review, 1981, 30, 33-38.

Harris, L. F., & Rosenberg, H. S. Creative drama and affective response to literature. Children's Theatre Review, 1983, 32 (2), 21-25.

Henderson, L. C., & Shanker, J. L. The use of interpretative dramatics versus basal reader workbooks for developing comprehension skill, Reading World, 1978, 17, 239-243.

Huntsman, K. H. Improvisational dramatic activities: Key to self-actualization. Children's Theatre Review, 1982, 31, 10-15.

Karioth, E. J. Creative dramatics as an aid in developing creative thinking abilities (Doctoral dissertation, University of

Minnesota, 1967). Dissertation Abstracts International, 1968, 28, 5180A.

Lazier, G., & Sutton-Smith, B. Assessment of role induction and role involvement in creative drama, 1970. ERIC document No. ED 039 254.

Lazier, G., Sutton-Smith, B, Karioth, E. J. & Zahn, D. The inventory of dramatic behavior: A content analysis technique for creative dramatics. Monograph published through HEW funds (1-D-063) for the ASSITEJ International Congress. Florida State University, Tallahassee, 1972.

Lazier, G., Sutton-Smith, B. & Zahn, D. A systematic analysis of developmental differences in dramatic improvisational behavior. Speech Monographs, 1971, 38, 155-165.

Lazier, G., Zahn, D. A., & Karioth, E. J. Dramatic behavior norms of Florida children. Empirical Research in Theatre, 1973, 3, 41-70.

Lunz, M. E. Creative dramatics and communications effectiveness. Children's Theatre Review, 1974, 23 (3), 3-6.

Massey, J., & Koziol, S. Research on creative dramatics. English Journal, 1978, 67, 92-95.

McCaslin, N. Creative dramatics in the classroom. New York: David McKay Co., 1968.

Noble, G., Egan, P., & McDowell, S. Changing the self-concepts of seven-year old deprived urban children by creative drama or videofeedback. Social Behavior and Personality, 1977, 5, 55-64.

Paley, V. The use of dramatics in kindergarten. The Elementary School Journal, 1978, 78, 319-323.

Pinciotti, P. A. A comparative study of two creative drama approaches on imagery ability and the dramatic improvisation (Doctoral dissertation, Rutgers University, 1982).

Rice, P. C. Development, implementation and evaluation of a "Moving Into Drama" program to develop basic learning skills and language (Doctoral dissertation, Michigan State University, 1971).

Pate, T. L. An investigation of the effects of creative drama upon reading ability, verbal growth, vocabulary development and self-concept of secondary school students (Doctoral dissertation, East Texas State University, 1977).

Pisanechi, P. Y. Creative dramatics experience and its relation to the creativity and self-concept of elementary school children (Doctoral dissertation, Temple University, 1977).

Prokes, S. D. Exploring the relationship between participation in creative dramatics and development of the imaginative capacities of gifted junior high school students (Doctoral dissertation, New York University, 1971).

Richardson, A. Mental imagery. New York: Springer Publishing Co., Inc., 1969.

Ridel, S. J. H. An investigation of the effects of creative dramatics on ninth grade students (Doctoral dissertation, Florida State University, 1975).

Rosen, C. E. The effects of sociodramatic play on problem-solving behavior among culturally disadvantaged pre-school children. Child Development, 1974, 45, 920-927.

Rosenberg, H. S., Pinciotti, P., & Smith, J. K. On Quantifying Dramatic Behavior. Children's Theatre Review, 1983, 32 (2), 3-8.

Siks, G. B. Creative dramatics: An art for children. New York: Harper and Row, 1958.

Siks, G. B. Drama with children. New York: Harper and Row, 1983.

Snyder-Greco, T. The effects of creative dramatic techniques on selected language functions of language disordered children. Children's Theatre Review, 1983, 32 (2), 9-13.

Spolin, V. Improvisation for the theatre. Evanston, Illinois: Northwestern University Press, 1963.

Spolin, V. Theatre game file. St. Louis, Missouri: CEMEREL, 1975.

Stewig, J. W., & Young, L. An exploration of the relation between creative drama and language growth. Children's Theatre Review, 1978, 27 (2), 10-12.

Strickland, D. S. A program for linguistically different black children. Research in the teaching of English, 1973, 7, 79-86.

Wagner, B. J. Dorothy Heathcote: Drama as a learning medium. Washington D.C.: National Education Association, 1976.

Ward, W. Creative dramatics. New York: D. Appleton & Co., 1930.

Ward, W. Playmaking with children. New York: Appleton-Century Crofts, 1957.

Way, B. Development through drama. New York: Humanities Press, 1967.

Wilkerson, J. A. On evaluation of involvement in developmental drama and its relationship to self-monitoring and hemisphericity. Children's Theatre Review, 1983, 32 (2), 15-18.

Wright, L. Creative dramatics and the development of role-taking in the elementary classroom. Elementary English, 1974, 51, 89-93.

Youngers, J. S. An investigation in creative dramatics on creative and semantic development in children (Doctoral dissertation, University of Iowa, 1977).

1983 Arts and Learning Special Interest Group Program

Montreal, Canada

1.34 Perspectives on Children, Art Conversations, and Visual Imagery (12:25 - 1:55; April 11)

Chair: Nancy R. Johnson, Marshall University

Participants: Ways to Talk and What to Say: A Study of Art Conversations Among Young Children and Adults in Pre-School Settings. Martha Taunton, University of Iowa

The Response of Primary Children to Picture Books. Barbara Z. Kiefer, Ohio State University-Lima

**Copying and Creativity in Children's Art Behaviors. Nancy R. Smith, Boston University

Respondents: Hilda P. Lewis, San Francisco State University

Kenneth Lansing, University of Illinois

45.19 Teaching and Learning in the Arts (4:05 - 6:05; April 14)

Chair: Nancy R. Johnson, Marshall University

Participants: The Development of Perspective Drawing Skills. J. Anne Murphy and Robert J. Bracewell, McGill University

The Metaphoric Interpretation of Paintings: Effect of the Clustering Strategy and of Relaxed Attention Exercises. Hermine Feinstein, University of Cincinnati

Changing the Quality of Schooling Through the Arts: Implementation and Effects of Aesthetic Education Curricula. Nanthalia L. Washington, CEMREL

Music and Reading/Language Arts: An Exploration of Relationships. Linda L. Kelley, University of Pennsylvania

Structural Information Retention in Visual Art Processing. Judith Smith Koroscik, Ohio State University

Respondents: Brent Wilson, Pennsylvania State University

Marjorie Wilson, Consultant, Pennsylvania Furnace (PA)

58.01 Round Table Session (3:05 - 3:45; April 15)

Participants: An Analysis of Experimental Measures of Learning in Studies of Visual Art Viewing Processes. Barbara Boyer and Judith S. Koroscik, Ohio State University

**The Recognition of Artistic Styles: Transformations of Skills and Awarenesses. Antonia D'Onofrio, Widener University and Calvin R. Nodine, Temple University

Arts Integrated Curriculum for Grades K-6: The Determination of Program Impact. Jon C. Marshall, University of Missouri and Suellen Garner, Community Unit District #1, Charleston (IL)

The Relative Effects of Three Creative Drama Approaches on the Dramatic Behavior and Mental Imagery Ability of Elementary School Children. Helane S. Rosenberg and Patricia Pinciotti, Rutgers University

**Papers not available for publication.